

**Amendments to the Drawings:**

Figures 1-26 have been amended to include the relevant sequence identifiers were appropriate. No new matter has been added.

Attachment: Replacement sheet  
Annotated Marked-up Drawings

## REMARKS

### Amendments to the Specification

The specification has been amended to comply with the requirements of 37 C.F.R. 1.821-1.825. Specifically, sequence identifiers have been added to the Figures and to the specification at pages 7-9 and 24 to accompany the sequence disclosures that are encompassed by the definitions for nucleotide sequences as set forth in 37 C.F.R. 1.821(a)(1). Although these sequences were not identified by a SEQ ID NO in the specification, they were part of the Sequence Listing filed with the United States Patent and Trademark Office on July 19, 2004. Therefore, a substitute computer readable form (CRF) copy and a substitute paper copy of the "Sequence Listing" are not required. No new matter has been added by this amendment.

### Rejection For Failure To Comply With 37 C.F.R. §§ 1.821-1.825

The application has been rejected for failing to comply with the requirements of 37 C.F.R. § 1.821. Specifically, the Office Action states that the application references sequences by the identifier Oligo(s) rather than the proper identifier SEQ ID NO (citing page 30, line 5 as an example).

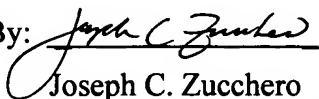
Applicants respectfully disagree. Nucleotide and/or amino acid sequences as used in §§ 1.821 through 1.825 are interpreted to mean an unbranched sequence of four or more amino acids or an unbranched sequence of ten or more nucleotides. 37 C.F.R. § 1.821(a)(1) states that nucleotides are intended to embrace only those nucleotides that can be represented using the symbols set forth in WIPO Standard ST.25 (1998), and (a)(2) states that Amino acids are those L-amino acids commonly found in naturally occurring proteins and are listed in WIPO Standard ST.25 (1998). Since the disclosure in the application, for example, at pages 29 and 30, do not meet these definitions, the application complies with the Sequence Listing requirements. Applicants are allowed to be their own lexicographers and can give whatever name they choose to the disclosed oligonucleotides. Sequence identifiers are only required where the sequence is disclosed. Reconsideration and withdrawal of the rejection are respectfully requested.

**CONCLUSION**

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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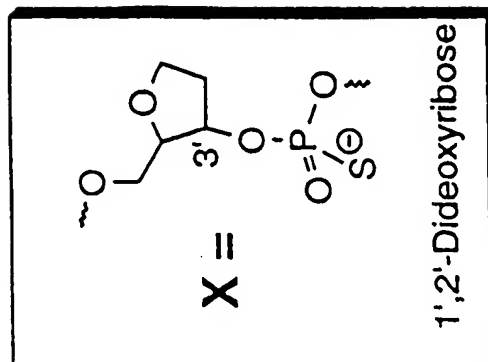
By:   
Joseph C. Zuccherro  
Registration No. 55,762

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

*Sequence & Modification*

<u>SEQ ID NO.: 8</u>	<u>8</u>	5'-CCTACTAGCGTTCTCATC-3' (133-1)
<u>SEQ ID NO.: 9</u>	<u>9</u>	5'-CCTACTAGCXTTCTCATC-3' (139-2)
<u>SEQ ID NO.: 10</u>	<u>10</u>	5'-CCTACTAXCGTTCTCATC-3' (133-2)
<u>SEQ ID NO.: 11</u>	<u>11</u>	5'-CCTACTXGCGTTCTCATC-3' (139-3)
<u>SEQ ID NO.: 12</u>	<u>12</u>	5'-CCTACXAGCGTTCTCATC-3' (133-3)
<u>SEQ ID NO.: 13</u>	<u>13</u>	5'-CCTAXTAGCGTTCTCATC-3' (139-4)
<u>SEQ ID NO.: 14</u>	<u>14</u>	5'-CCTXCTAGCGTTCTCATC-3' (133-4)
<u>SEQ ID NO.: 15</u>	<u>15</u>	5'-CCTXCTAGCGTTCTCATC-3' (145-10a)
<u>SEQ ID NO.: 16</u>	<u>16</u>	5'-CCTACTAGCGTCTCATC-3' (133-5)
<u>SEQ ID NO.: 17</u>	<u>17</u>	5'-CCTACTAGCGTXCTCATC-3' (139-7)
<u>SEQ ID NO.: 18</u>	<u>18</u>	5'-CCTACTAGCGTTXCTCATC-3' (133-6)
<u>SEQ ID NO.: 19</u>	<u>19</u>	5'-CCTACTAGCGTTCXCATC-3' (139-8)
<u>SEQ ID NO.: 20</u>	<u>20</u>	5'-CCTXXTAGCGTTCTCATC-3' (133-12)
<u>SEQ ID NO.: 21</u>	<u>21</u>	5'-XXTAGCGTTCTCATC-3' (139-6)
<u>SEQ ID NO.: 22</u>	<u>22</u>	5'-CCTACTAGCGTTCXXATC-3' (139-9)
<u>SEQ ID NO.: 23</u>	<u>23</u>	5'-CCTXCTXGCGTTCTCATC-3' (145-10b)

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**FIG. 1A**

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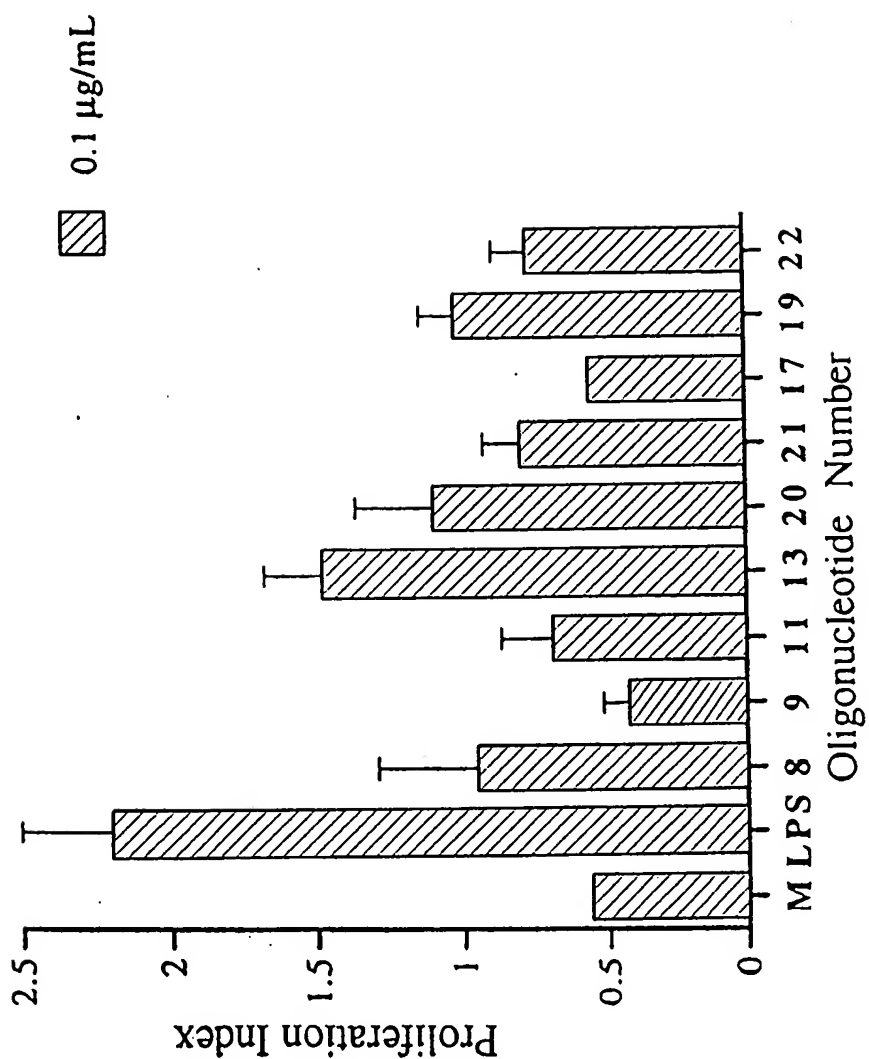


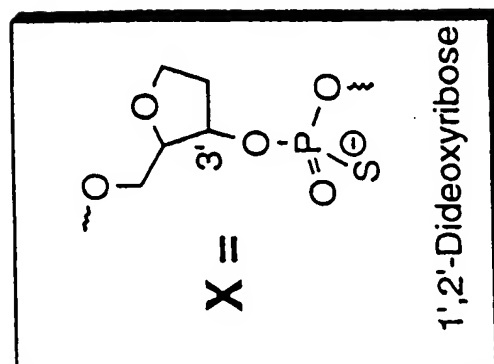
FIG. 1B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

*Sequence & Modification*

<u>SEQ ID NO.: 8</u>	<u>8</u>	5'-CCTACTAGCGTTCTCATC-3' (133-1)
<u>SEQ ID NO.: 9</u>	<u>9</u>	5'-CCTACTAGCXTTCTCATC-3' (139-2)
<u>SEQ ID NO.: 10</u>	<u>10</u>	5'-CCTACTAXCGTTCTCATC-3' (133-2)
<u>SEQ ID NO.: 11</u>	<u>11</u>	5'-CCTACTXGCGTTCTCATC-3' (139-3)
<u>SEQ ID NO.: 12</u>	<u>12</u>	5'-CCTACXAGCGTTCTCATC-3' (133-3)
<u>SEQ ID NO.: 13</u>	<u>13</u>	5'-CCTAXTAGCGTTCTCATC-3' (139-4)
<u>SEQ ID NO.: 14</u>	<u>14</u>	5'-CCTXCTAGCGTTCTCATC-3' (133-4)
<u>SEQ ID NO.: 15</u>	<u>15</u>	5'-CCTXCTAGCCTTCTCATC-3' (145-10a)
<u>SEQ ID NO.: 16</u>	<u>16</u>	5'-CCTACTAGCGXTCTCATC-3' (133-5)
<u>SEQ ID NO.: 17</u>	<u>17</u>	5'-CCTACTAGCGTXCTCATC-3' (139-7)
<u>SEQ ID NO.: 18</u>	<u>18</u>	5'-CCTACTAGCGTTXTCATC-3' (133-6)
<u>SEQ ID NO.: 19</u>	<u>19</u>	5'-CCTACTAGCGTTCXCATC-3' (139-8)
<u>SEQ ID NO.: 20</u>	<u>20</u>	5'-CCTXXTAGCGTTCTCATC-3' (133-12)
<u>SEQ ID NO.: 21</u>	<u>21</u>	5'-XXTAGCGTTCTCATC-3' (139-6)
<u>SEQ ID NO.: 22</u>	<u>22</u>	5'-CCTACTAGCGTTCXXATC-3' (139-9)
<u>SEQ ID NO.: 23</u>	<u>23</u>	5'-CCTXCTXGCGTTCTCATC-3' (145-10b)

FIG. 2A



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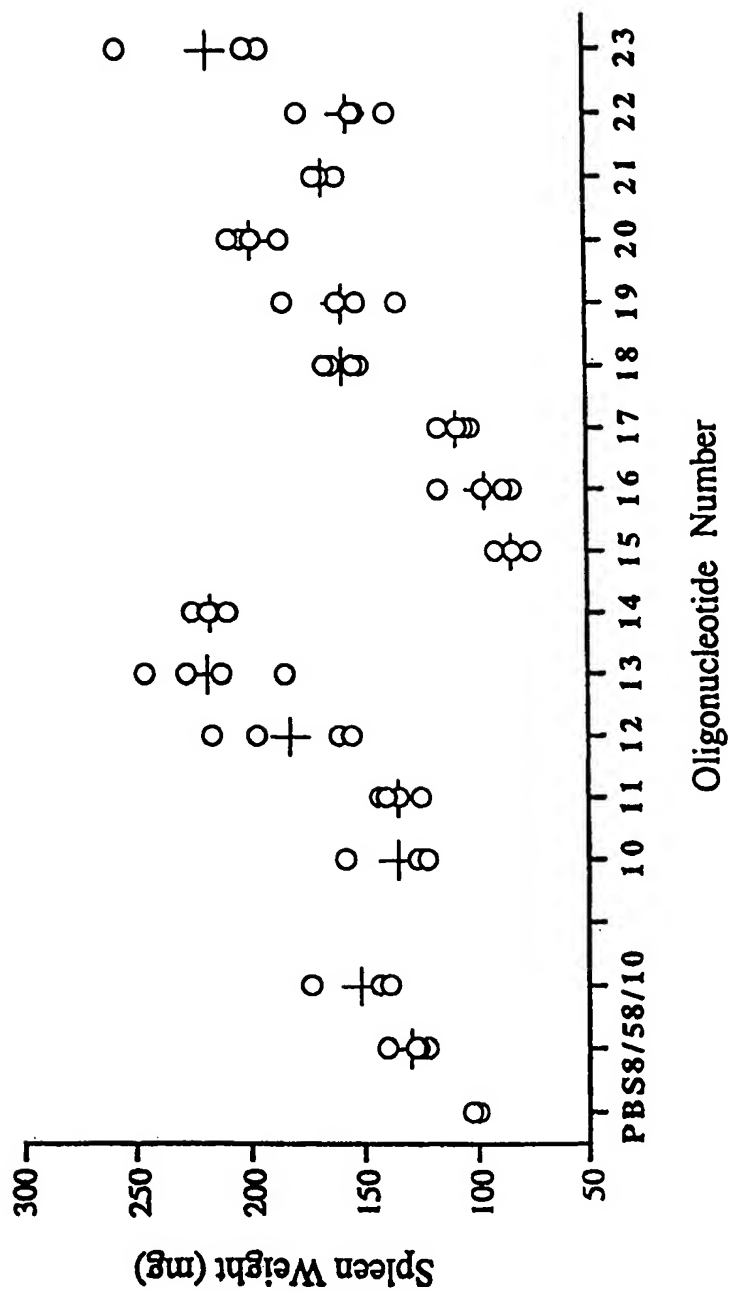


FIG. 2B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
SEQ ID NO.: 1	5'-CTATCTGACGTTCTCTGT-3' (131-1)
SEQ ID NO.: 105	5'-CTATCTGAXGTTCTCTGT-3' (131-13)
SEQ ID NO.: 106	5'-CTATCTGXC GTTCTCTGT-3' (131-2)
SEQ ID NO.: 107	5'-CTATCXGACGTTCTCTGT-3' (131-3)
SEQ ID NO.: 108	5'-CTAXCTGACGTTCTCTGT-3' (131-4)
SEQ ID NO.: 109	5'-CTATCTGACGXTCTCTGT-3' (131-5)
SEQ ID NO.: 110	5'-CTATCTGACGTTXTCTGT-3' (131-6)

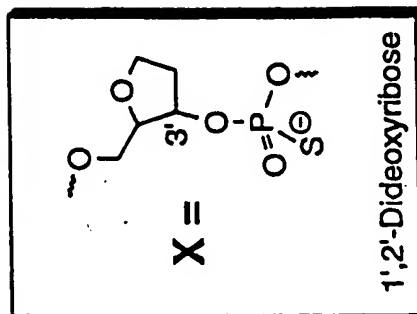


FIG. 3A



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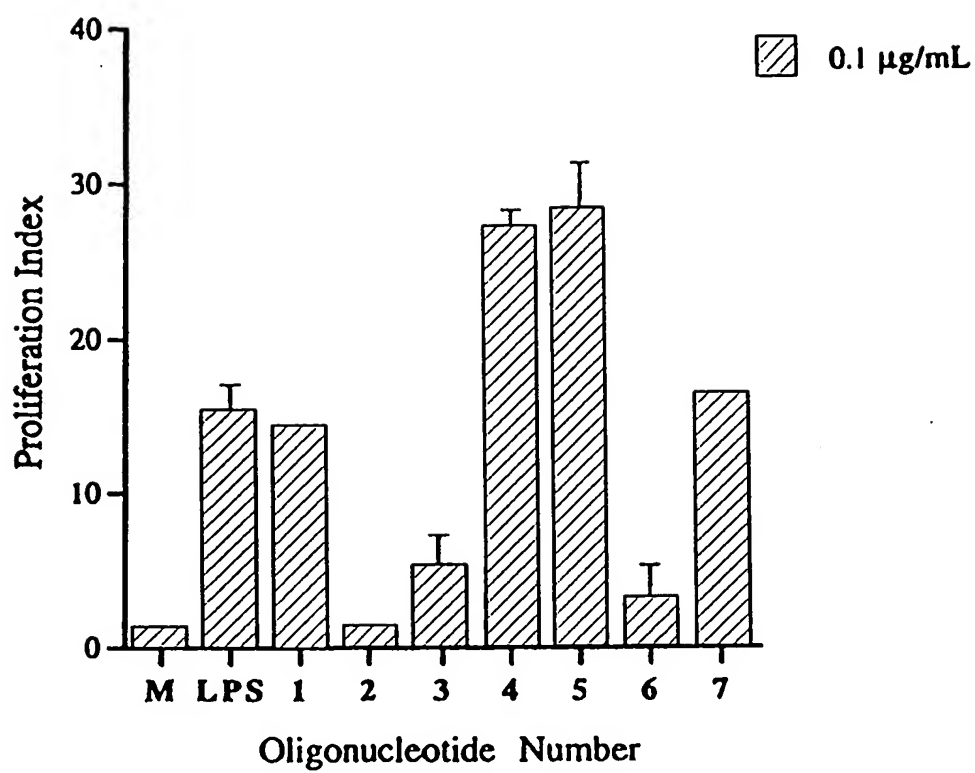


FIG. 3B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

*Sequence & Modification*

<u>SEQ ID NO.: 1</u>	<u>1</u>	5'-CTATCTGACGTTCTCTGT-3' (131-1)
<u>SEQ ID NO.: 105</u>	<u>2</u>	5'-CTATCTGAXGTTCTCTGT-3' (131-13)
<u>SEQ ID NO.: 106</u>	<u>3</u>	5'-CTATCTGXCGTTCTCTGT-3' (131-2)
<u>SEQ ID NO.: 107</u>	<u>4</u>	5'-CTATCXGACGTTCTCTGT-3' (131-3)
<u>SEQ ID NO.: 108</u>	<u>5</u>	5'-CTAXCTGACGTTCTCTGT-3' (131-4)
<u>SEQ ID NO.: 109</u>	<u>6</u>	5'-CTATCTGACGXTCTCTGT-3' (131-5)
<u>SEQ ID NO.: 110</u>	<u>7</u>	5'-CTATCTGACGTTXCTCTGT-3' (131-6)

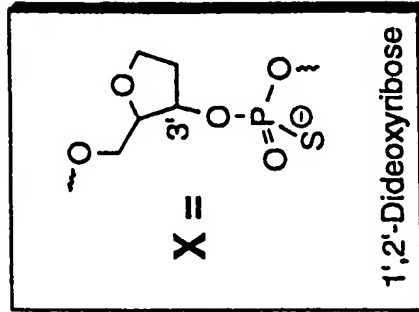


FIG. 4A

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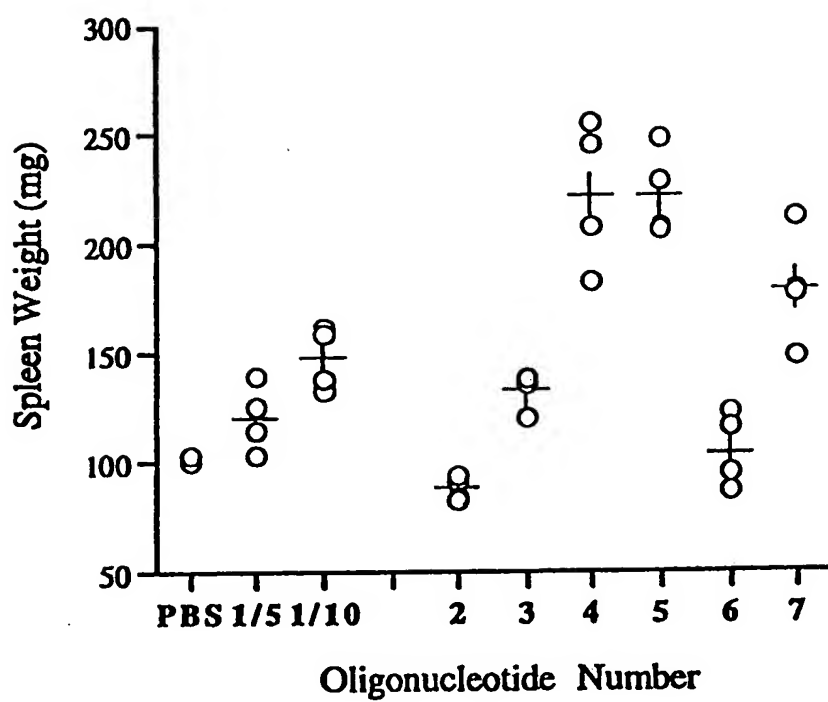


FIG. 4B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

*Sequence & Modification*

<u>SEQ ID NO.: 8</u>	133-1	5'-CCTACTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 24</u>	141-2	5'-CCTACTAGCXTTTCTCATC-3'
<u>SEQ ID NO.: 25</u>	141-3	5'-CCTACTXGCGTTCTCATC-3'
<u>SEQ ID NO.: 26</u>	141-4	5'-CCTAXTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 27</u>	141-5	5'-CCTXXTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 28</u>	141-6	5'-XXTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 29</u>	141-7	5'-CCTACTAGCGTXCTCATC-3'
<u>SEQ ID NO.: 30</u>	141-8	5'-CCTACTAGCGTTCXCATC-3'
<u>SEQ ID NO.: 31</u>	141-9	5'-CCTACTAGCGTTCXXATC-3'
<u>SEQ ID NO.: 1</u>	131-1	5'-CTATCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 32</u>	137-2	5'-CTATCTGXCGTTCTCTGT-3'
<u>SEQ ID NO.: 33</u>	137-3	5'-CTATCXGACGTTCTCTGT-3'
<u>SEQ ID NO.: 34</u>	137-4	5'-CTAXCTGACGTTCTCTGT-3'

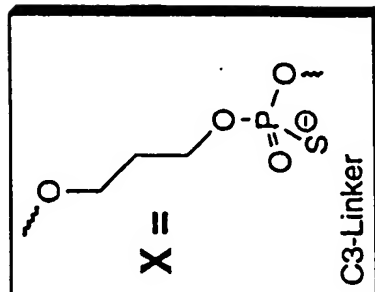


FIG. 5A

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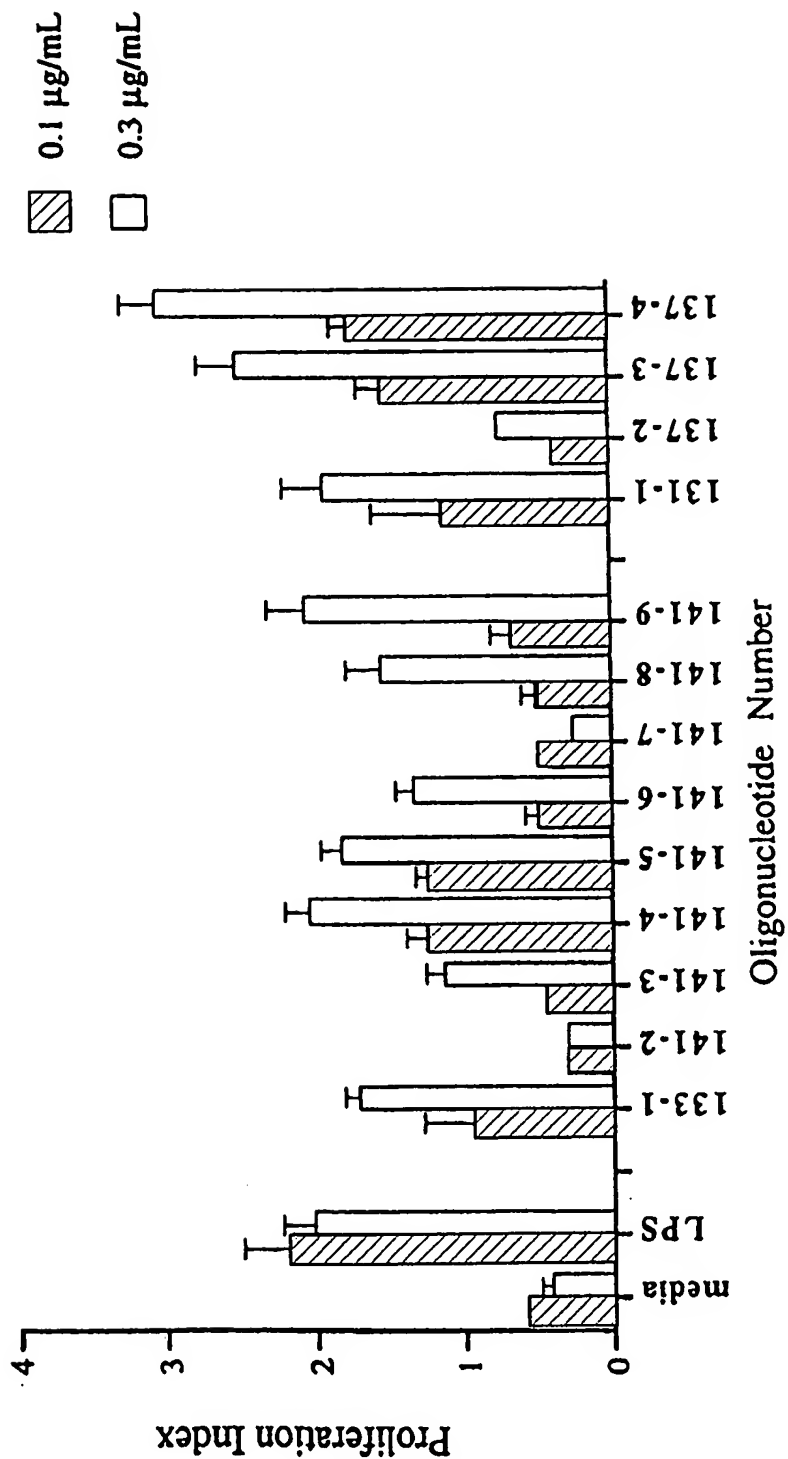


FIG. 5B

# OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification
<u>SEQ ID NO.: 8</u>	5'-CCTACTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 24</u>	5'-CCTACTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 25</u>	5'-CCTACTXGCGTTCTCATC-3'
<u>SEQ ID NO.: 26</u>	5'-CCTAXTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 27</u>	5'-CCTXXTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 28</u>	5'-XTACTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 29</u>	5'-CCTACTAGCGTXCTCATC-3'
<u>SEQ ID NO.: 30</u>	5'-CCTACTAGCGTTCXCATC-3'
<u>SEQ ID NO.: 31</u>	5'-CCTACTAGCGTTCXXATC-3'
<u>SEQ ID NO.: 1</u>	5'-CTATCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 32</u>	5'-CTATCTGXCGTTCTCTGT-3'
<u>SEQ ID NO.: 33</u>	5'-CTATCXGACGTTCTCTGT-3'
<u>SEQ ID NO.: 34</u>	5'-CTAXCTGACGTTCTCTGT-3'

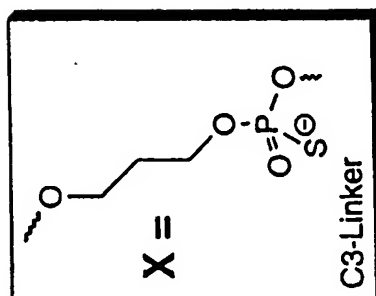


FIG. 6A

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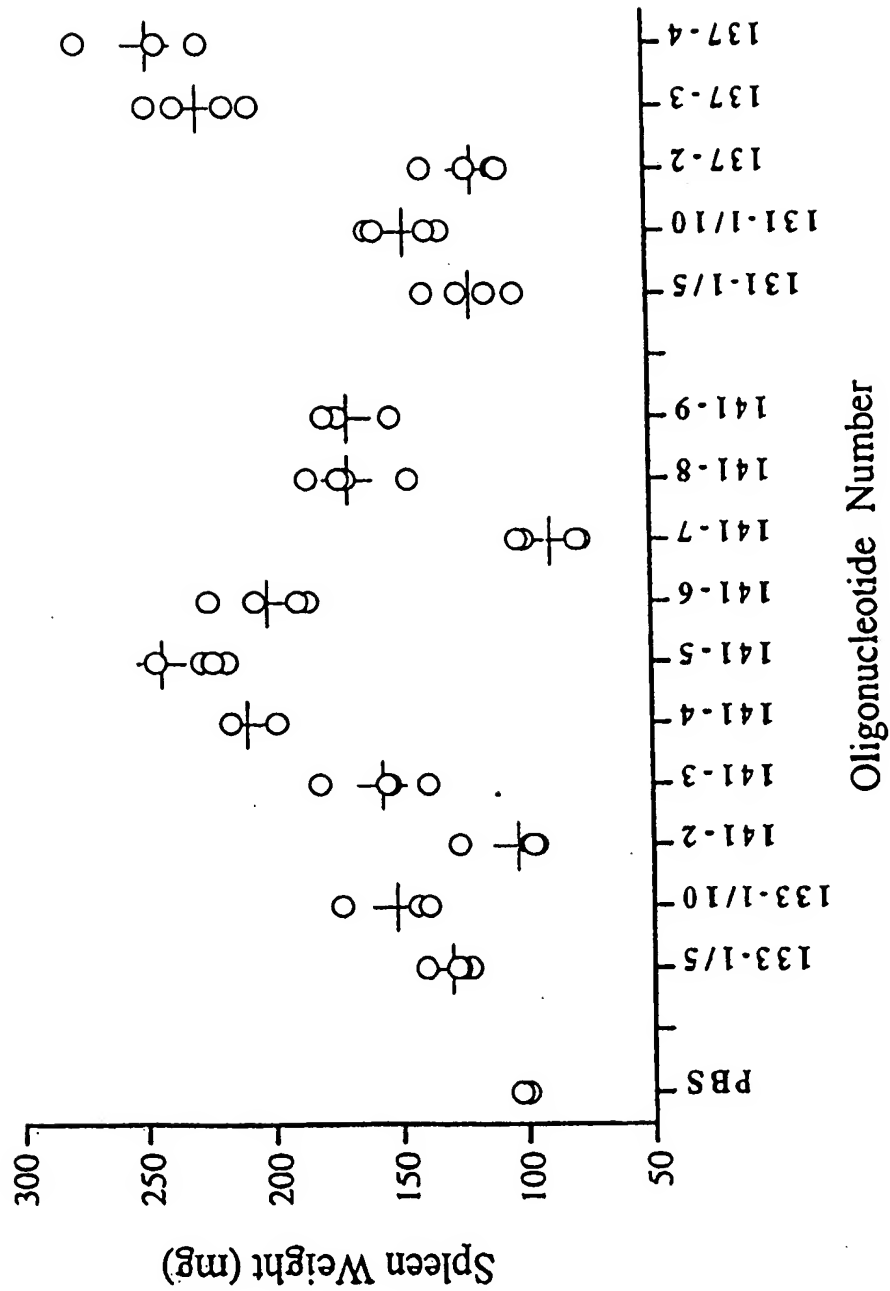


FIG. 6B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

<i>Oligo No.</i>		<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 1</u>	1	5'-CTATCTGACGTTCTCTGT-3' (131-1)
<u>SEQ ID NO.: 35</u>	2	5'-CTAXCTGACGTTCTCTGT-3' (153-1)
<u>SEQ ID NO.: 36</u>	3	5'-CTATCTGACGTTCTCTGT-3' (153-2)
<u>SEQ ID NO.: 37</u>	4	5'-CTAYCTGACGTTCTCTGT-3' (153-3)
<u>SEQ ID NO.: 38</u>	5	5'-CTATCTGACGTTCTCTGT-3' (153-4)
<u>SEQ ID NO.: 8</u>	6	5'-CCTACTAGCGTTCTCATC-3' (133-1)
<u>SEQ ID NO.: 39</u>	7	5'-CCTXCTAGCGTTCTCATC-3' (155-1)
<u>SEQ ID NO.: 40</u>	8	5'-CCTACTAGCGTTCTCATC-3' (155-2)
<u>SEQ ID NO.: 41</u>	9	5'-CCTYCTAGCGTTCTCATC-3' (155-3)
<u>SEQ ID NO.: 42</u>	10	5'-CCTACTAGCGTTCTCATC-3' (155-4)

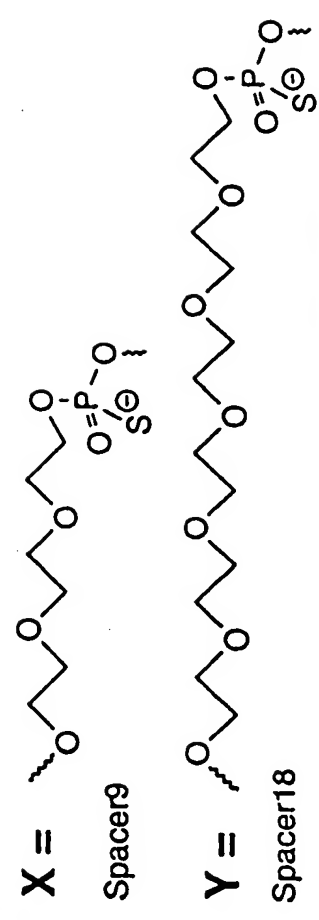


FIG. 7A



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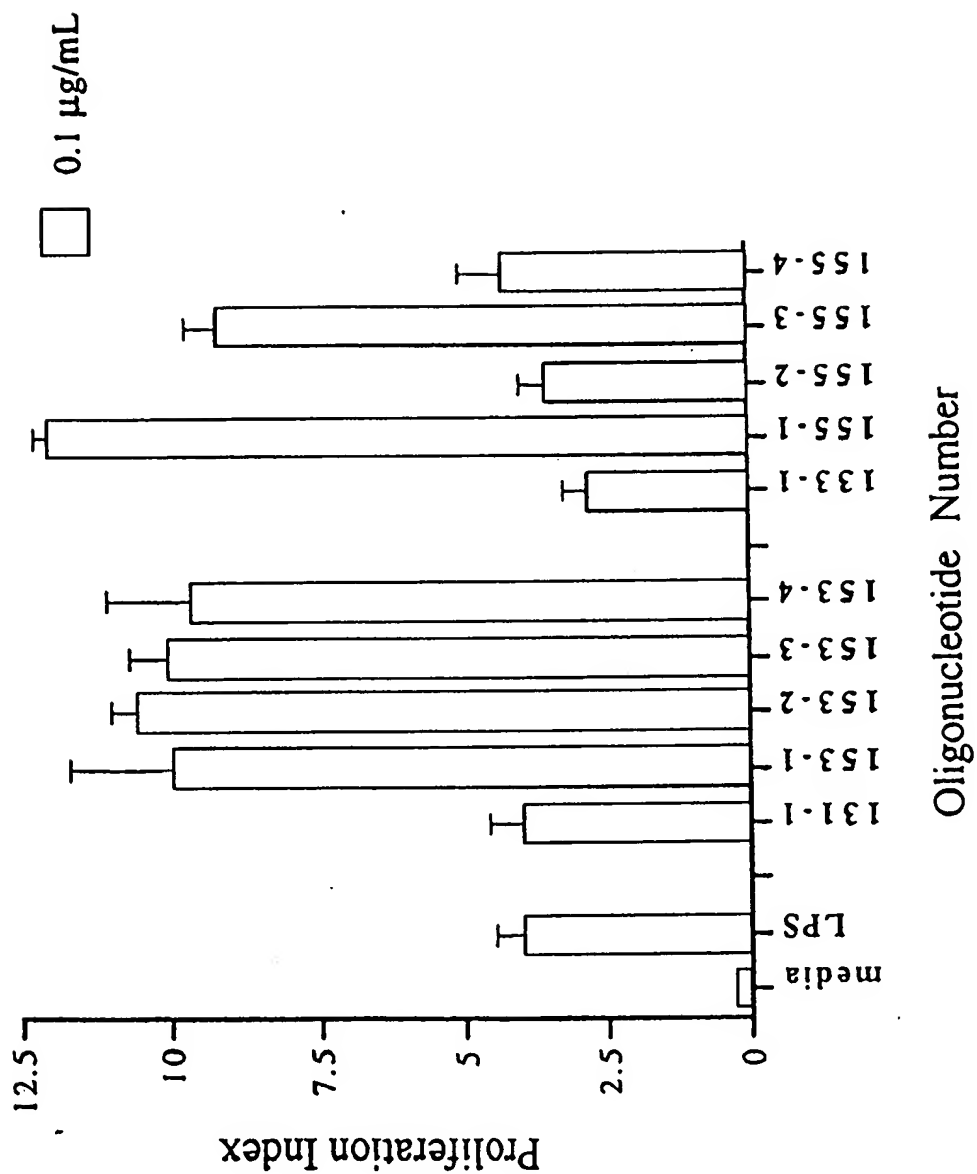


FIG. 7B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

<i>Oligo No.</i>		<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 1</u>	1	5'-CTATCTGACGTTCTCTGT-3' (131-1)
<u>SEQ ID NO.: 35</u>	2	5'-CTAXCTGACGTTCTCTGT-3' (153-1)
<u>SEQ ID NO.: 36</u>	3	5'-CTATCTGACGTTCTCTGT-3' (153-2)
<u>SEQ ID NO.: 37</u>	4	5'-CTAYCTGACGTTCTCTGT-3' (153-3)
<u>SEQ ID NO.: 38</u>	5	5'-CTATCTGACGTTCTCTGT-3' (153-4)
<u>SEQ ID NO.: 8</u>	6	5'-CCTACTAGCGTTCTCATC-3' (133-1)
<u>SEQ ID NO.: 39</u>	7	5'-CCTXCTAGCGTTCTCATC-3' (155-1)
<u>SEQ ID NO.: 40</u>	8	5'-CCTACTAGCGTTCTCATC-3' (155-2)
<u>SEQ ID NO.: 41</u>	9	5'-CCTYCTAGCGTTCTCATC-3' (155-3)
<u>SEQ ID NO.: 42</u>	10	5'-CCTACTAGCGTTCTCATC-3' (155-4)

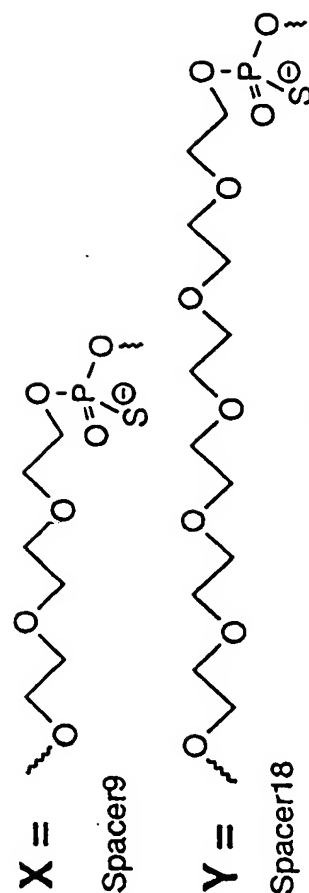


FIG. 8A

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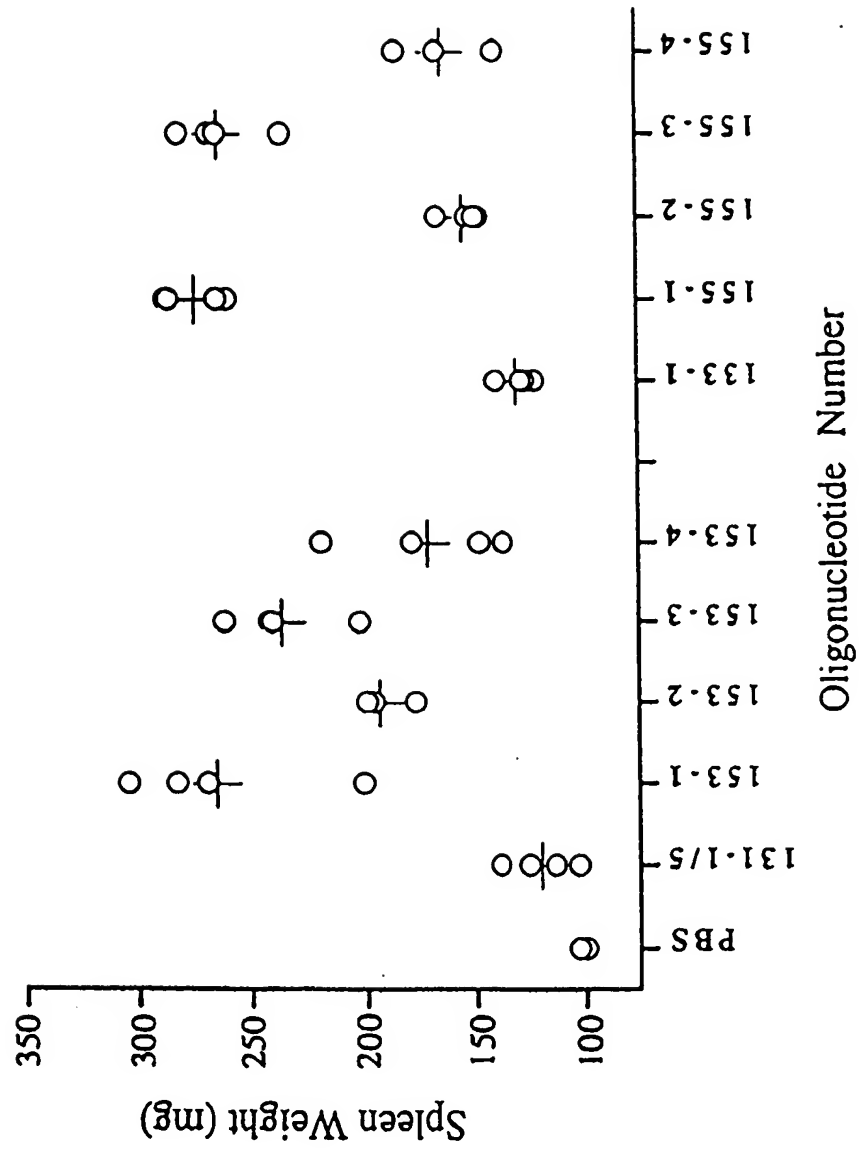


FIG. 8B

## Sequence & Modification

<u>SEQ ID NO.: 1</u>	1	5'-CTATCTGACGTTCTCTGT-3' (131-1)
<u>SEQ ID NO.: 43</u>	2	5'-CTATCTGXC GTTCTCTGT-3' (157-1)
<u>SEQ ID NO.: 44</u>	3	5'-CTATCTXACGTTCTCTGT-3' (157-2)
<u>SEQ ID NO.: 45</u>	4	5'-CTAXCTGACGTTCTCTGT-3' (157-3)
<u>SEQ ID NO.: 46</u>	5	5'-CTATCTGACGTXCTCTGT-3' (157-4)
<u>SEQ ID NO.: 47</u>	6	5'-CTATCTGACGTTXCXCTGT-3' (157-5)

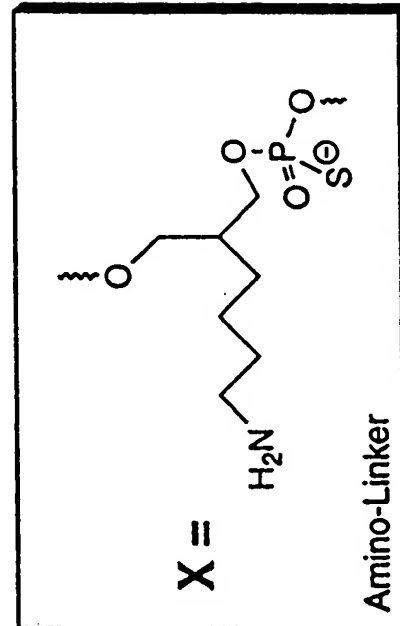


FIG. 9A

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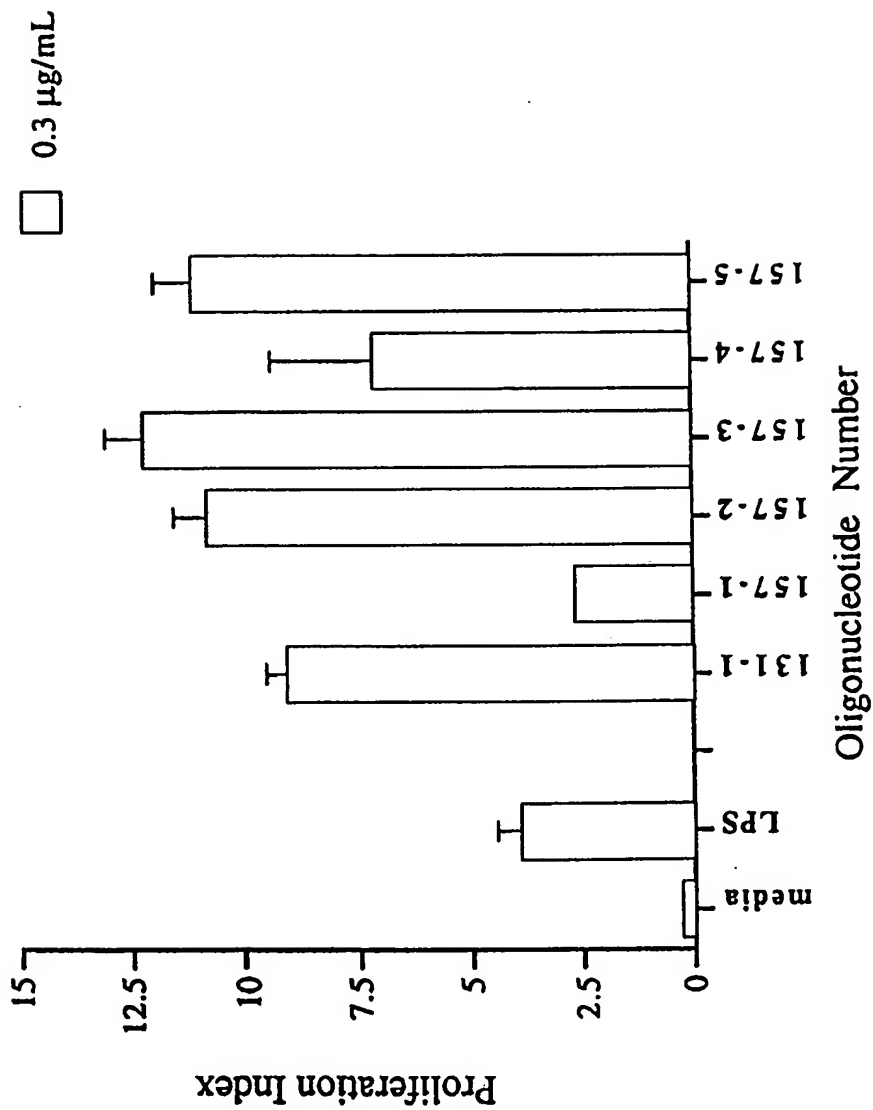


FIG. 9B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 1</u>	1 5'-CTATCTGACGTTCTCTGT-3' (131-1)
<u>SEQ ID NO.: 43</u>	2 5'-CTATCTGXCGTTCTCTGT-3' (157-1)
<u>SEQ ID NO.: 44</u>	3 5'-CTATCTXACGTTCTCTGT-3' (157-2)
<u>SEQ ID NO.: 45</u>	4 5'-CTAXCTGACGTTCTCTGT-3' (157-3)
<u>SEQ ID NO.: 46</u>	5 5'-CTATCTGACGTXCTCTGT-3' (157-4)
<u>SEQ ID NO.: 47</u>	6 5'-CTATCTGACGTTXCXCTGT-3' (157-5)

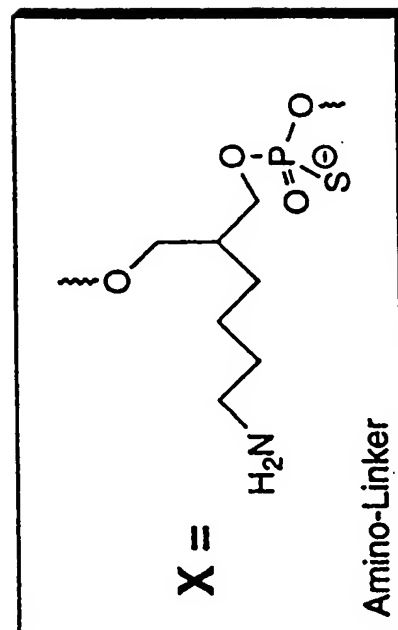


FIG. 10A

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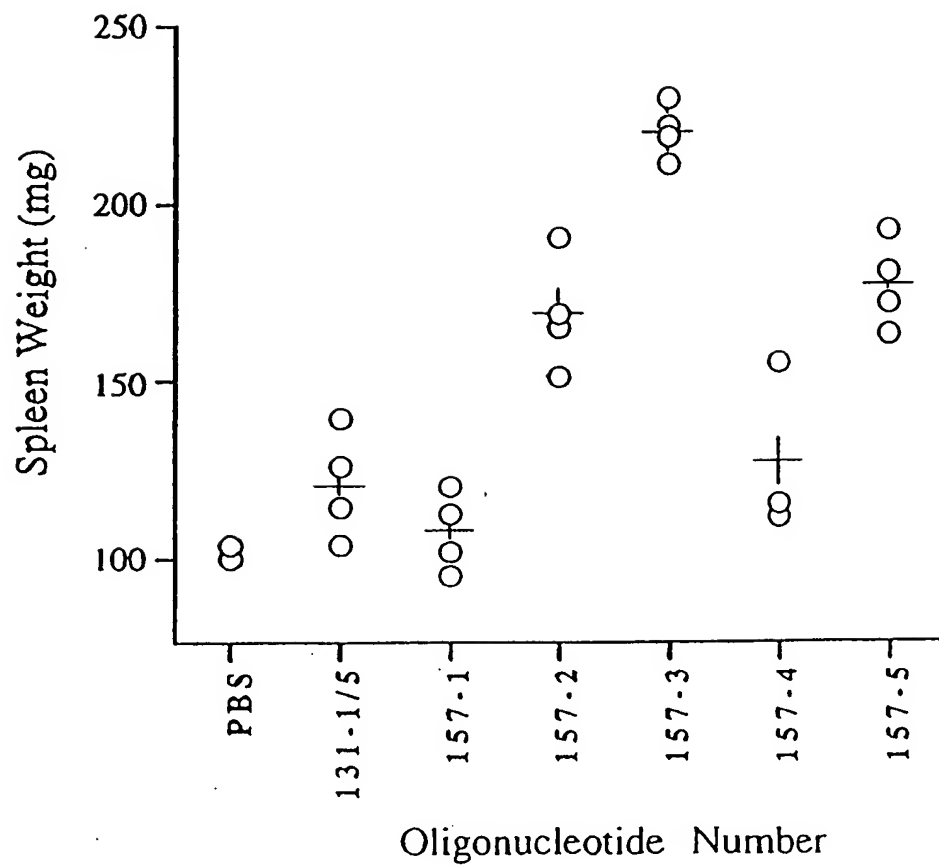


FIG. 10B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

*Oligo No.*      *Sequence & Modification*

<u>SEQ ID NO.: 1</u> 131-1	5'-CTATCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 48</u> 159-1	5'-CTATCTGACXTTTCTCTGT-3'
<u>SEQ ID NO.: 49</u> 159-2	5'-CTATCTGAXGTTCTCTGT-3'
<u>SEQ ID NO.: 50</u> 159-3	5'-CTATXTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 51</u> 159-4	5'-CTATCTGACGTTCTXTGT-3'
<u>SEQ ID NO.: 8</u> 133-1	5'-CCTACTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 52</u> 161-1	5'-CCTACTAGCXTTTCTCATC-3'
<u>SEQ ID NO.: 53</u> 161-2	5'-CCTACTAGXGTTCTCATC-3'
<u>SEQ ID NO.: 54</u> 161-3	5'-CCTACTAXCGTTTCTCATC-3'
<u>SEQ ID NO.: 55</u> 161-4	5'-CCTAXTAGCGTTTCTCATC-3'
<u>SEQ ID NO.: 56</u> 161-5	5'-CCTACTAGCGTTTCTXATC-3'

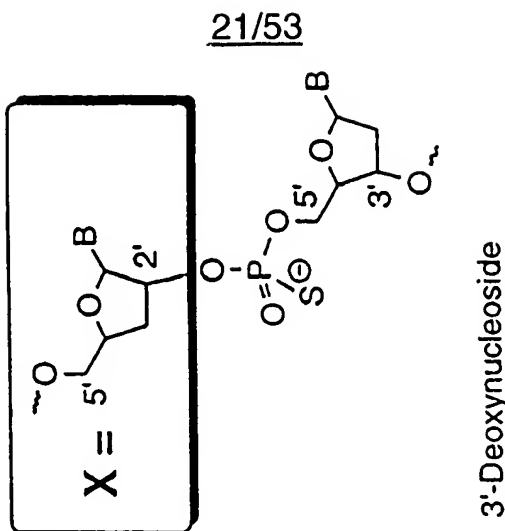


FIG. 11A



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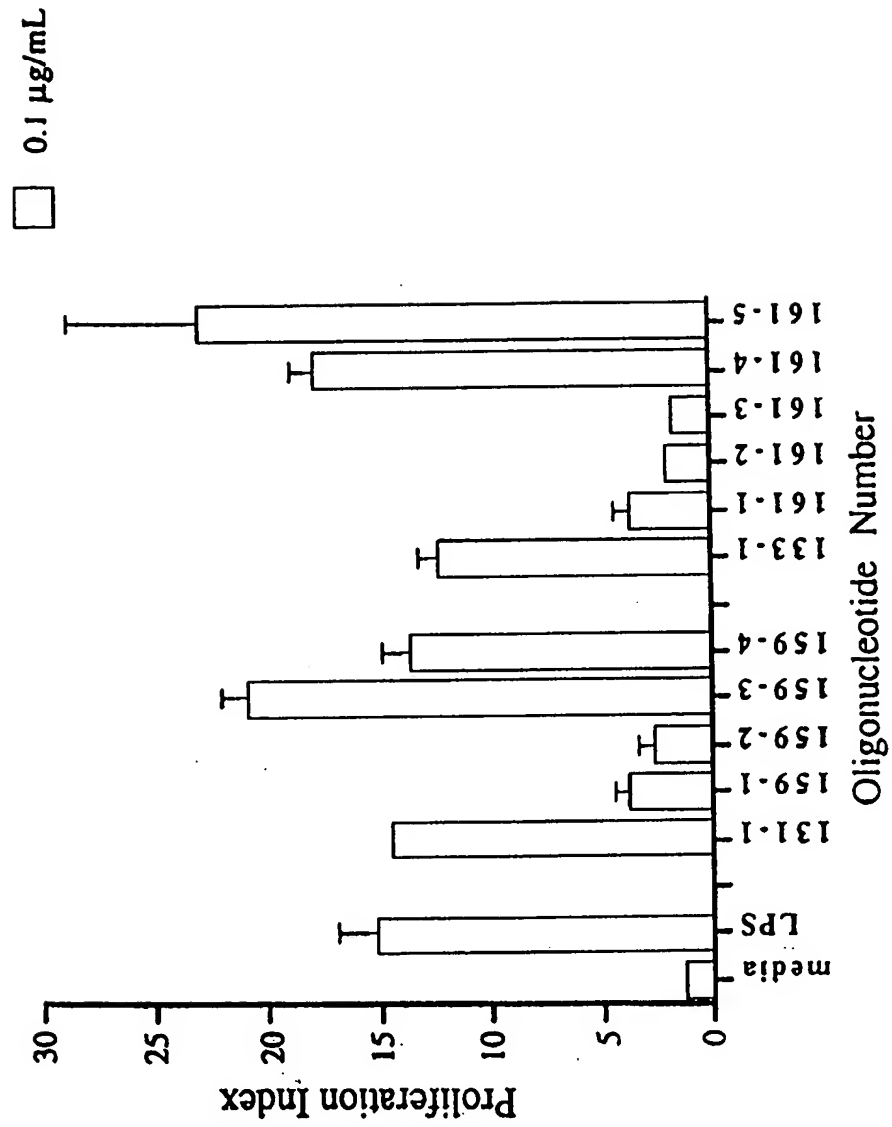


FIG. 11B

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$X =$

3'-Deoxynucleoside

FIG. 12A

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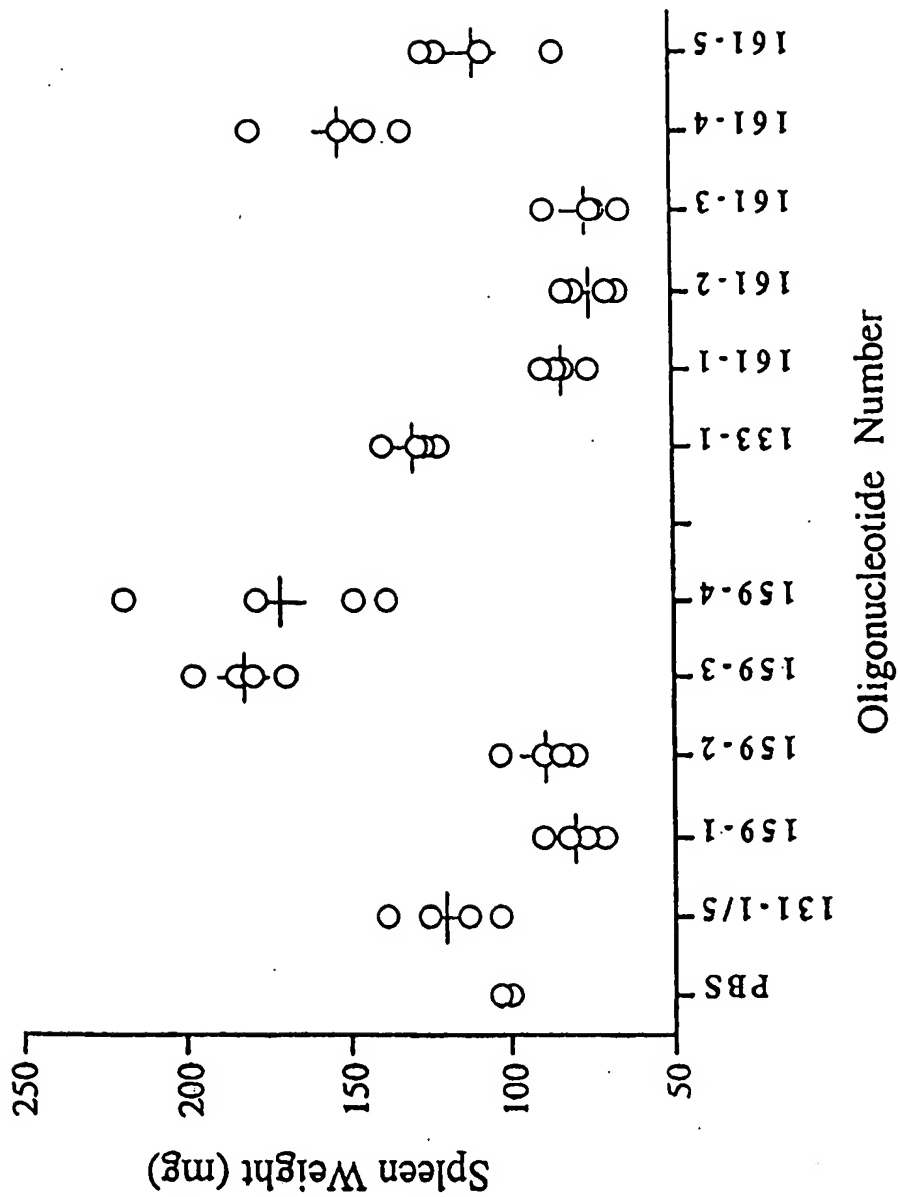


FIG. 12B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.		Sequence & Modification
<u>SEQ ID NO.: 1</u>	<u>131-1</u>	5'-CTATCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 57</u>	<u>167-1</u>	5'-CTATCTGXCGTTCTCTGT-3'
<u>SEQ ID NO.: 58</u>	<u>167-2</u>	5'-CTATCTXACGTTCTCTGT-3'
<u>SEQ ID NO.: 59</u>	<u>167-3</u>	5'-CTATCXGACGTTCTCTGT-3'
<u>SEQ ID NO.: 60</u>	<u>167-4</u>	5'-CTATXTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 61</u>	<u>167-5</u>	5'-CTAXCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 62</u>	<u>167-6</u>	5'-CTXCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 63</u>	<u>167-7</u>	5'-CTATCTGACGXTCTCTGT-3'
<u>SEQ ID NO.: 64</u>	<u>167-8</u>	5'-CTATCTGACGTXCTCTGT-3'
<u>SEQ ID NO.: 65</u>	<u>167-9</u>	5'-CTATCTGACGTTXTCTGT-3'
<u>SEQ ID NO.: 66</u>	<u>167-10</u>	5'-CTATCTGACGTTXCCTGT-3'
<u>SEQ ID NO.: 67</u>	<u>16711</u>	5'-CTATCTGACGTTCTXTGT-3'
<u>SEQ ID NO.: 68</u>	<u>167-12</u>	5'-CTATCTGACGTTCTXXGT-3'

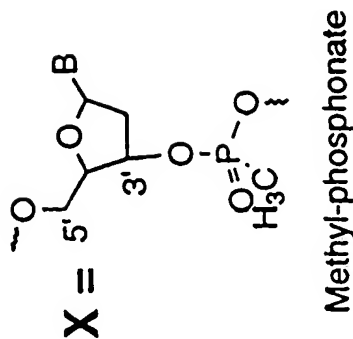


FIG. 13A

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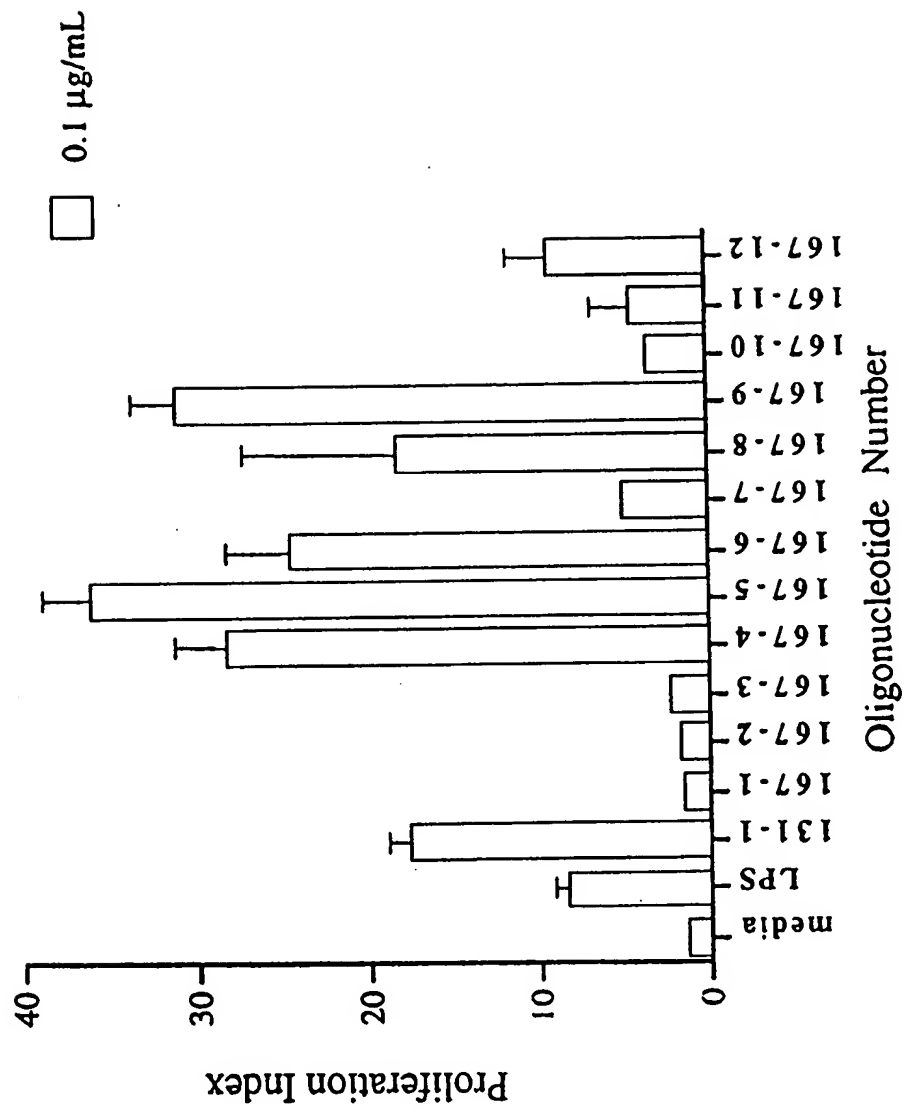


FIG. 13B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 1</u> 131-1	5'-CTATCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 57</u> 167-1	5'-CTATCTGXCGTTCTCTGT-3'
<u>SEQ ID NO.: 58</u> 167-2	5'-CTATCTXACGTTCTCTGT-3'
<u>SEQ ID NO.: 59</u> 167-3	5'-CTATCXGACGTTCTCTGT-3'
<u>SEQ ID NO.: 60</u> 167-4	5'-CTATXTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 61</u> 167-5	5'-CTAXCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 62</u> 167-6	5'-CTXCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 63</u> 167-7	5'-CTATCTGACGXTCCTCTGT-3'
<u>SEQ ID NO.: 64</u> 167-8	5'-CTATCTGACGTXCCTCTGT-3'
<u>SEQ ID NO.: 65</u> 167-9	5'-CTATCTGACGTTXTCTGT-3'
<u>SEQ ID NO.: 66</u> 167-10	5'-CTATCTGACGTTXCCTGT-3'
<u>SEQ ID NO.: 67</u> 167-11	5'-CTATCTGACGTTCTXTGT-3'
<u>SEQ ID NO.: 68</u> 167-12	5'-CTATCTGACGTTCTXXGT-3'

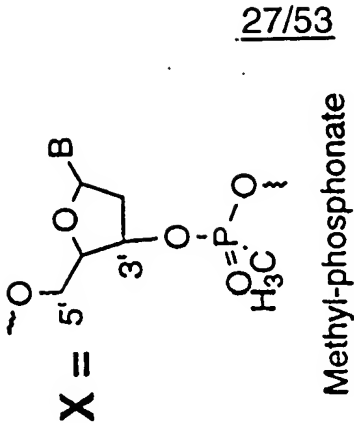


FIG. 14A

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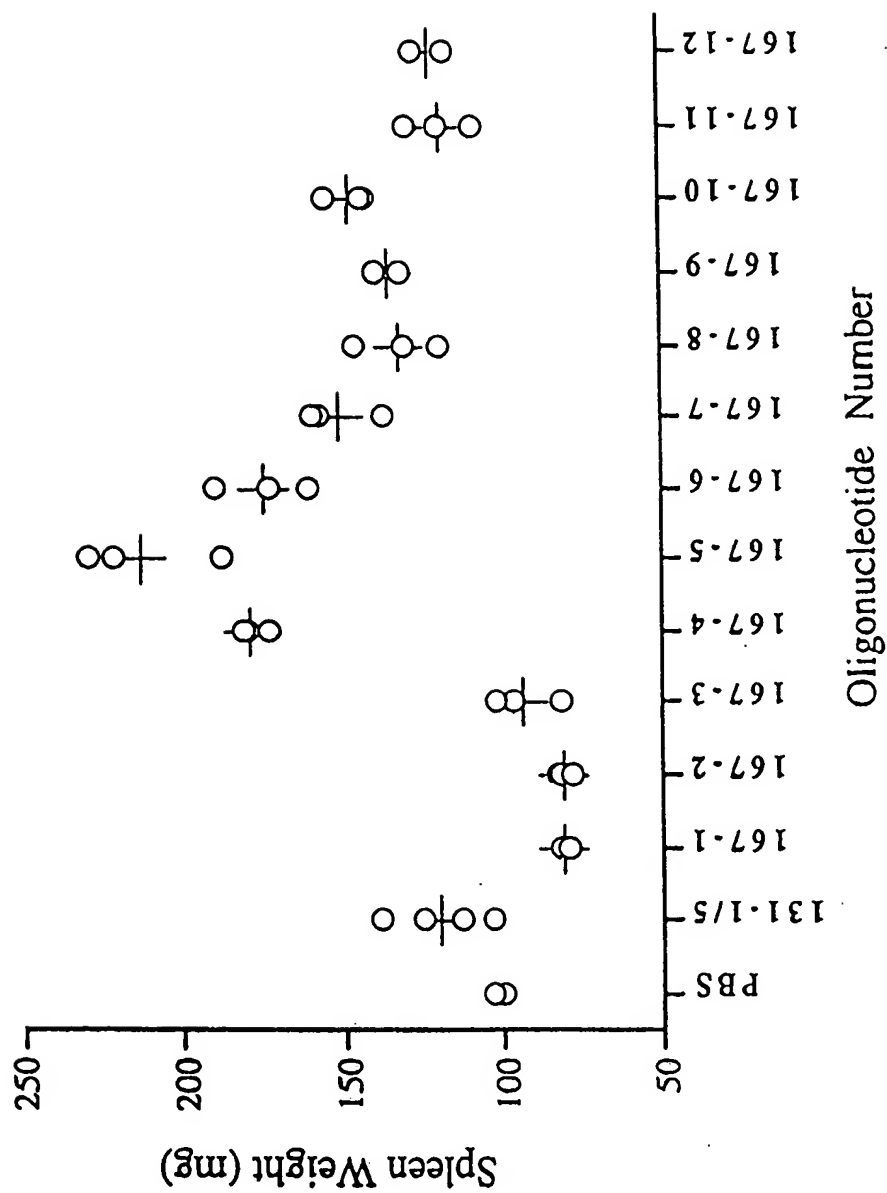
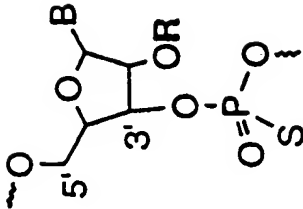


FIG. 14B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

*Oligo No.      Sequence & Modification*

<u>SEQ ID NO.: 69</u>	<u>113-1</u>	5'-TCCATGACGTTCCCTGATGC-3'
<u>SEQ ID NO.: 70</u>	<u>23-1</u>	5'-TCCATGXCGTTCCCTGATGC-3'
<u>SEQ ID NO.: 71</u>	<u>23-3</u>	5'-TCCAXGACGTTCCCTGATGC-3'
<u>SEQ ID NO.: 72</u>	<u>29-2</u>	5'-TYVATGACGGTCCTGATGC-3'



R<sub>x</sub> = 2'-O-Methylribonucleoside  
R<sub>y</sub> = 2'-O-Methoxyethoxyribonucleoside

FIG. 15A



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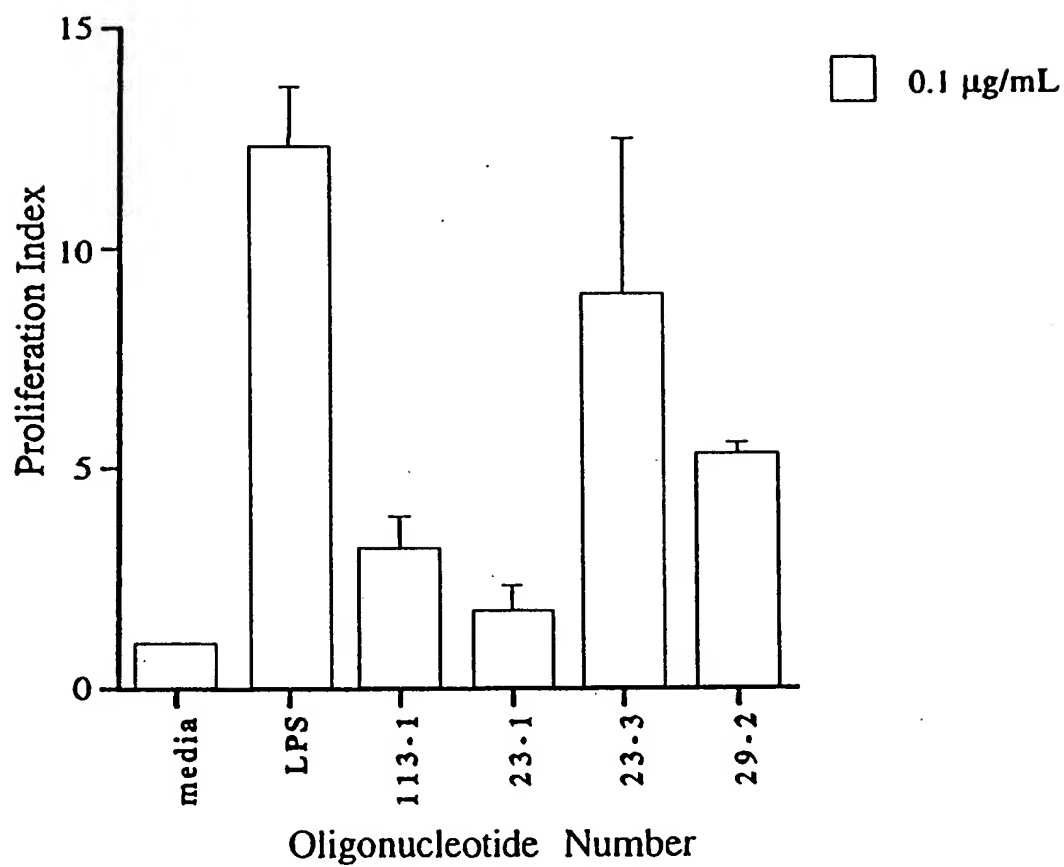
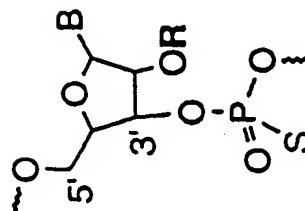


FIG. 15B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

*Oligo No. Sequence & Modification*

<u>SEQ ID NO.: 69</u>	<u>113-1</u>	5'-TCCATGACGTTTCCTGATGC-3'
<u>SEQ ID NO.: 70</u>	<u>23-1</u>	5'-TCCATGXCGTTTCCTGATGC-3'
<u>SEQ ID NO.: 71</u>	<u>23-3</u>	5'-TCCAXGACGTTTCCTGATGC-3'
<u>SEQ ID NO.: 72</u>	<u>29-2</u>	5'-TYATGACGGTTCCTGATGC-3'



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R<sub>x</sub> = 2'-O-Methylribonucleoside  
R<sub>y</sub> = 2'-O-Methoxyethoxyribonucleoside

FIG. 16A

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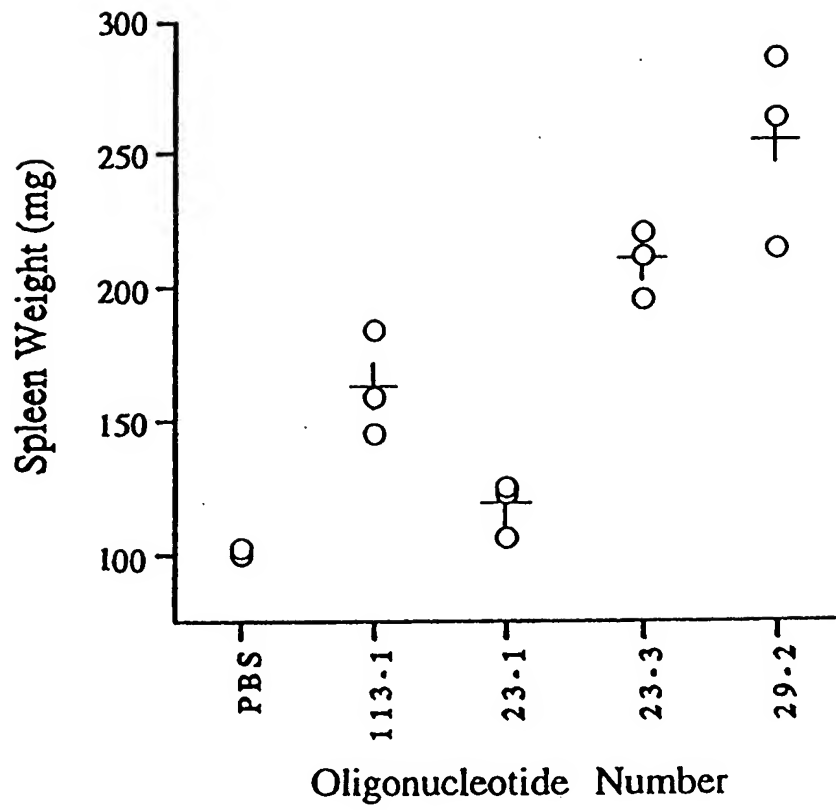


FIG. 16B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 73</u> 1	5'-G A G A A C G C T C G A C C T T-3'
<u>SEQ ID NO.: 74</u> 2	5'-G A G A A C G C T C G A C C T T-3'——5'-G A G A A C G C T C G A C C T T-3'
<u>SEQ ID NO.: 75</u> 3	3'-T T C C A G C T C G C A A G A G-5'——5'-G A G A A C G C T C G A C C T T-3'
<u>SEQ ID NO.: 76</u> 4	5'-G A G A A C G C T C G A C C T T-3'——3'-T T C C A G C T C G C A A G A G-5'
<u>SEQ ID NO.: 77</u> 5	5'-T C T C C C A G C G T G C G C C A T-3'
<u>SEQ ID NO.: 78</u> 6	5'-T C C C A G C G T G C G C C A T-3'——5'-T C C C A G C G T G C G C C A T-3'
<u>SEQ ID NO.: 79</u> 7	3'-T A C C G C G T G C G A C C C T-5'——5'-T C C C A G C G T G C G C C A T-3'
<u>SEQ ID NO.: 80</u> 8	5'-T C C C A G C G T G C G C C A T-3'——3'-T A C C G C G T G C G A C C C T-5'

FIG. 17A

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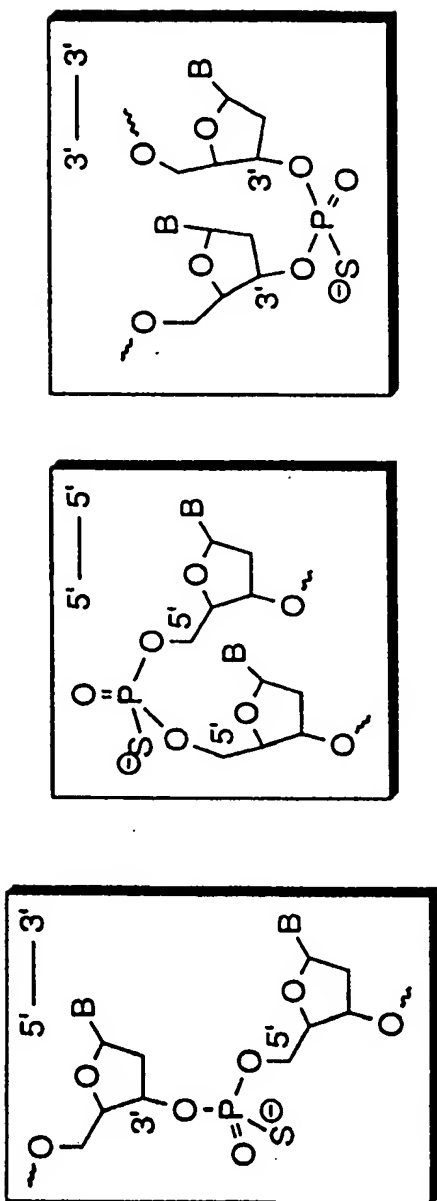


FIG. 17B

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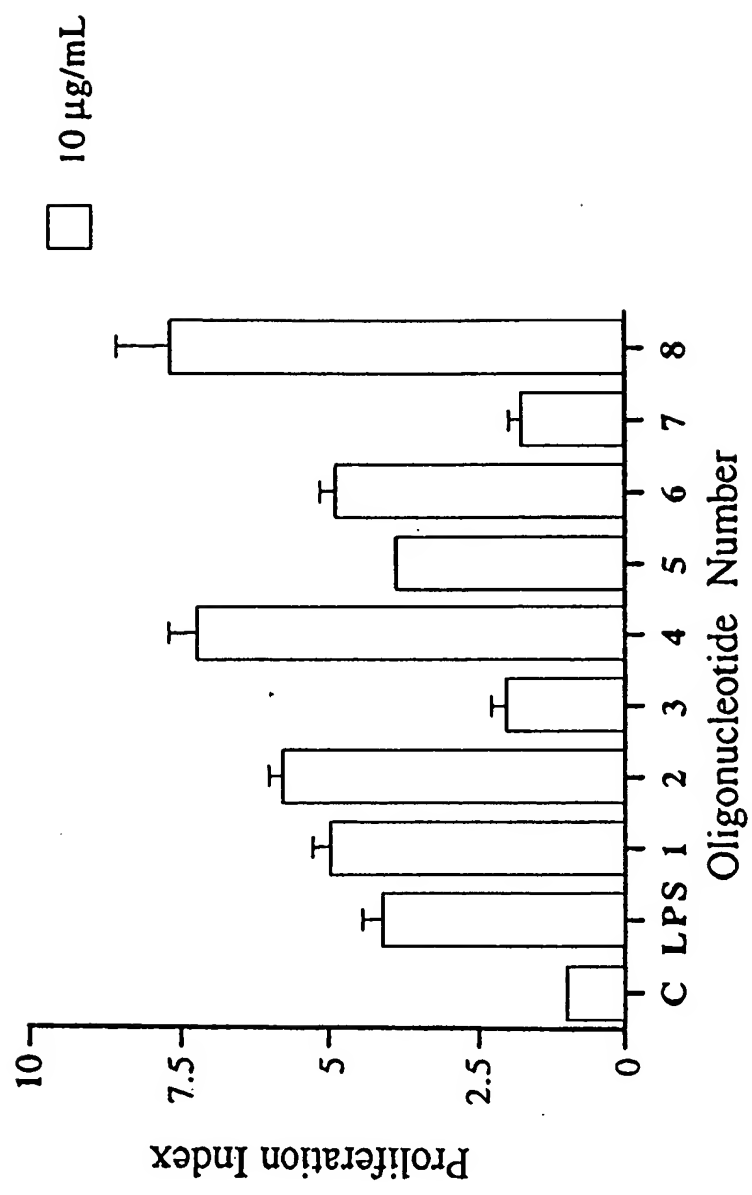


FIG. 17C

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 1</u> 131-1	5'-CTATCTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 81</u> 175-1	5'-CTATXTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 82</u> 175-2	5'-CTATCTGACGTTXCXCTGT-3'
<u>SEQ ID NO.: 83</u> 175-3	5'-CTAXXTGACGTTCTCTGT-3'
<u>SEQ ID NO.: 84</u> 175-4	5'-CTATCTGACGTTXCXCTGT-3'
<u>SEQ ID NO.: 85</u> 175-5	5'-CTATCTGAXXTTCTCTGT-3'
<u>SEQ ID NO.: 86</u> 175-6	5'-CTATCTXACGTTCTCTGT-3'
<u>SEQ ID NO.: 87</u> 175-7	5'-CTATCTGACGTXCTCTGT-3'
<u>SEQ ID NO.: 88</u> 175-9	5'-CTATCTGACGTTCTCTGT-3' (all-β-L-DNA/PS)

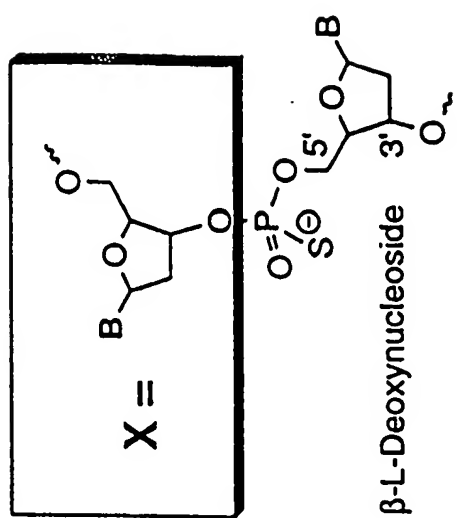


FIG. 18A

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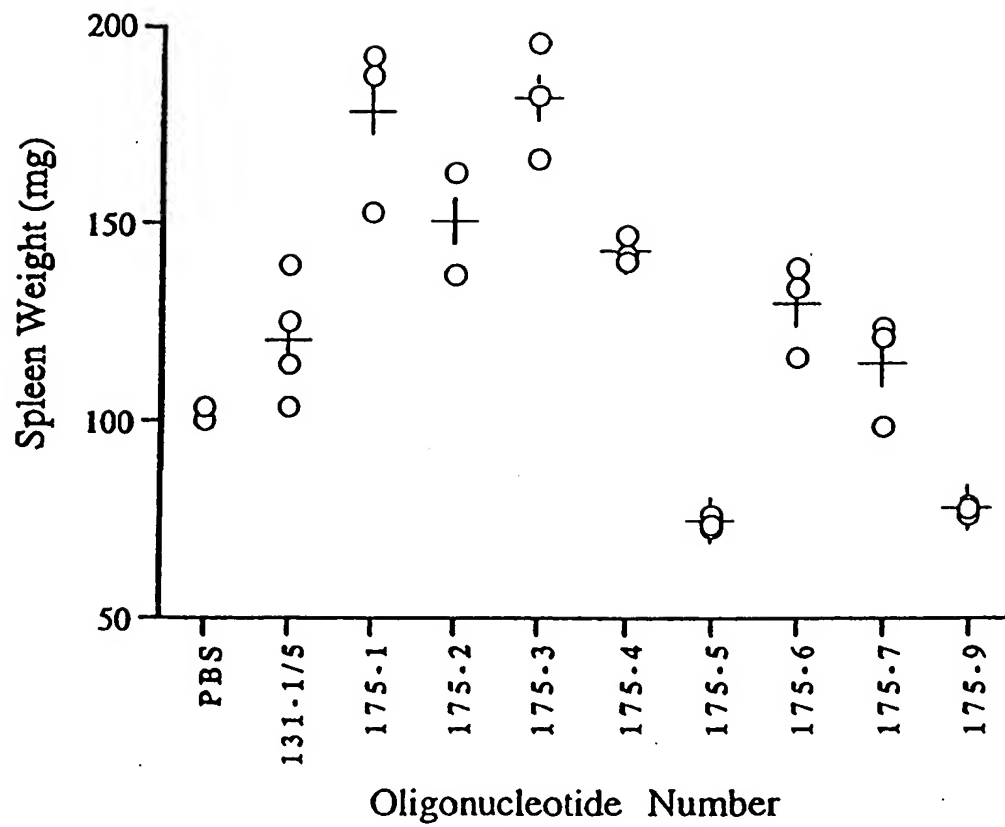


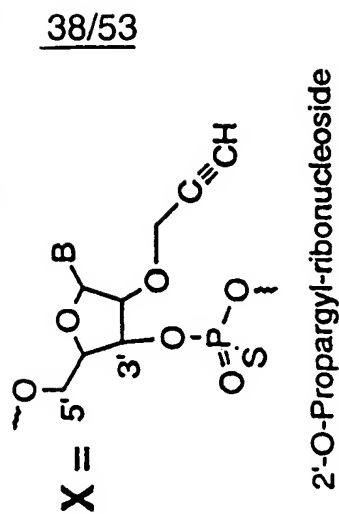
FIG. 18B



Oligo No.	Sequence & Modification
SEQ ID NO.: 1 131-1	5'-CTATCTGACGTTCTCTGT-3'
SEQ ID NO.: 89 173-1	5'-CTATXTGACGTTCTCTGT-3'
SEQ ID NO.: 90 173-2	5'-CTATCTGACGTTCTXTGT-3'

Chemical structure of a nucleotide derivative. The sugar is a ribose derivative with a phosphate group at the 5' position (labeled ~O) and a base 'B' at the 1' position. The 3' position is substituted with a group 'X'. The 4' position is substituted with a group 'O=P(O)(O-)-O-CH2-C≡CH'.

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**FIG. 19A**

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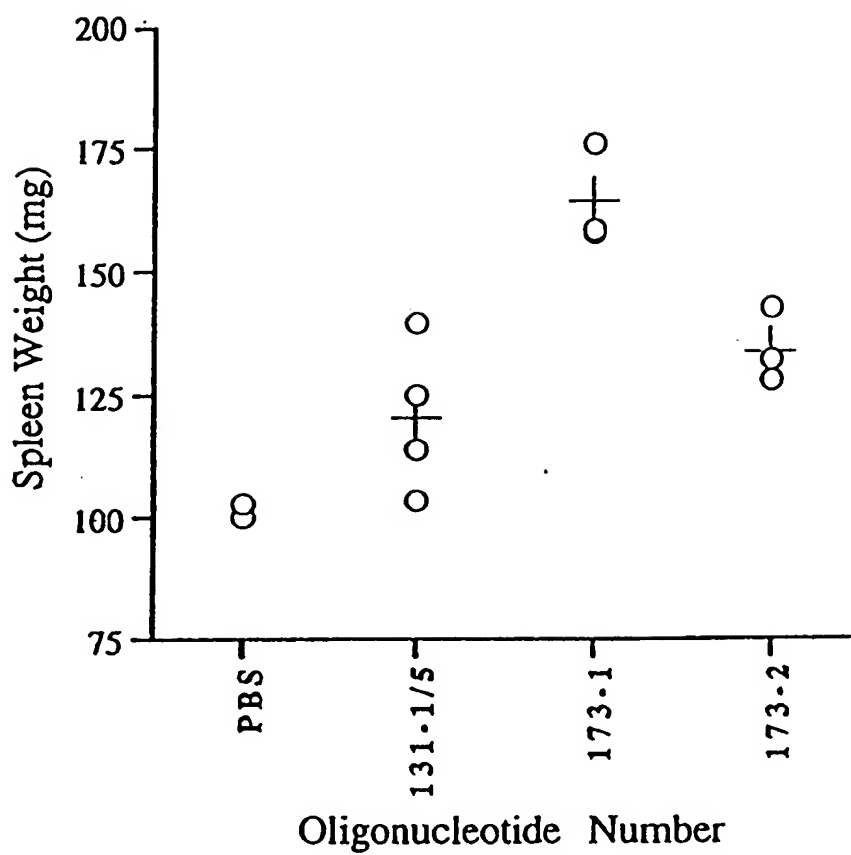


FIG. 19B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 8</u>	133-1 5'-CCTACTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 91</u>	143-1 5'-CCTXXTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 92</u>	143-2 5'-CCTYYTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 93</u>	143-3 5'-CCTZZTAGCGTTCTCATC-3'
<u>SEQ ID NO.: 94</u>	143-4 5'-CCTXXTAGCGTVCTCATC-3'
<u>SEQ ID NO.: 95</u>	143-5 5'-CCTACTAGG <u>C</u> TTCTCATC-3'

X = 1',2'-Dideoxyribose  
Y = C3-Linker  
Z = 3'-OMe  
V = 2'-OMe

FIG. 20A

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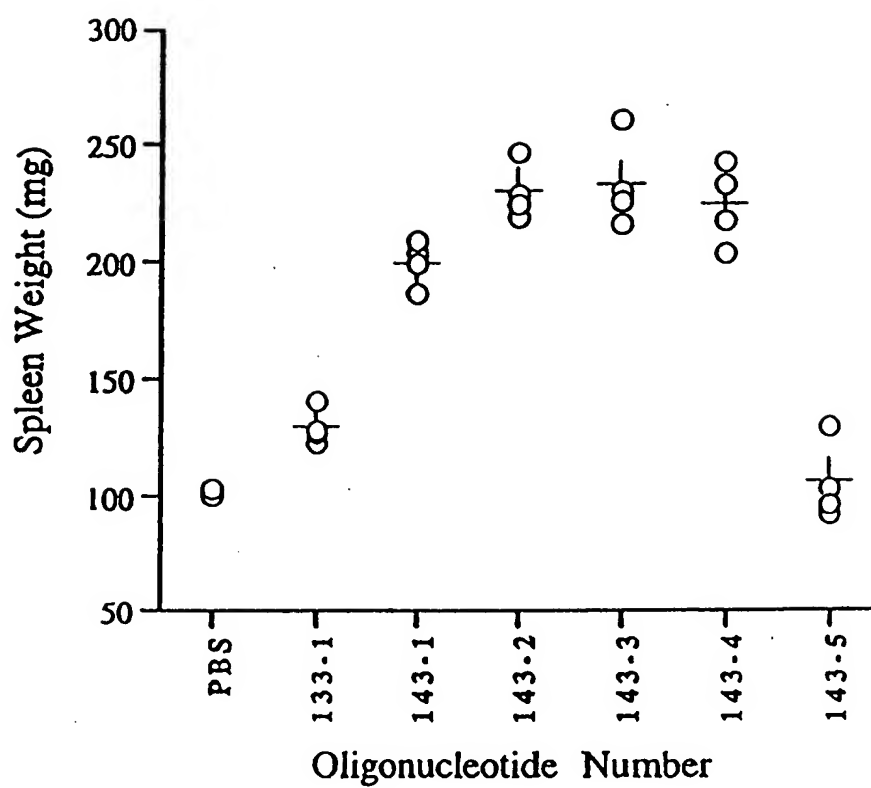


FIG. 20B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND  
MODIFICATION OF LINKAGES

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 1</u> 1	5'-CTATCTGAC <u>CG</u> TTCTCTGT-3' (I31-1)
<u>SEQ ID NO.: 96</u> 2	5'-CTATCTGAC <u>CG</u> *TTCTCTGT-3' (E 633L)
<u>SEQ ID NO.: 97</u> 3	5'-CTATCTGAG* <u>CTT</u> CTCTGT-3' (E 636)
<u>SEQ ID NO.: 98</u> 4	5'-TCTCCCAG <u>CG</u> TG <u>CG</u> CCAT-3'
<u>SEQ ID NO.: 99</u> 5	5'-TCTCCCAG <u>CG</u> *TG <u>CG</u> *CCAT-3' (E 603)
<u>SEQ ID NO.: 100</u> 6	5'-CTATXTGAC <u>CG</u> *TTCTCTGT-3' (E 639L)

FIG. 21A

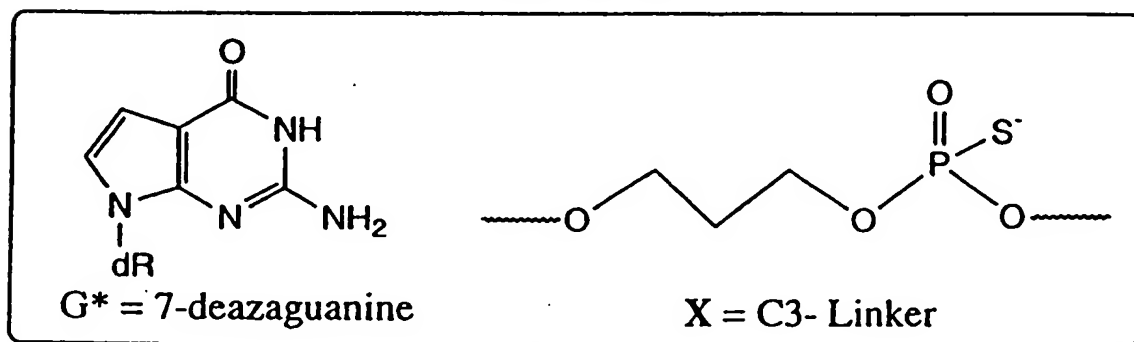


FIG. 21B

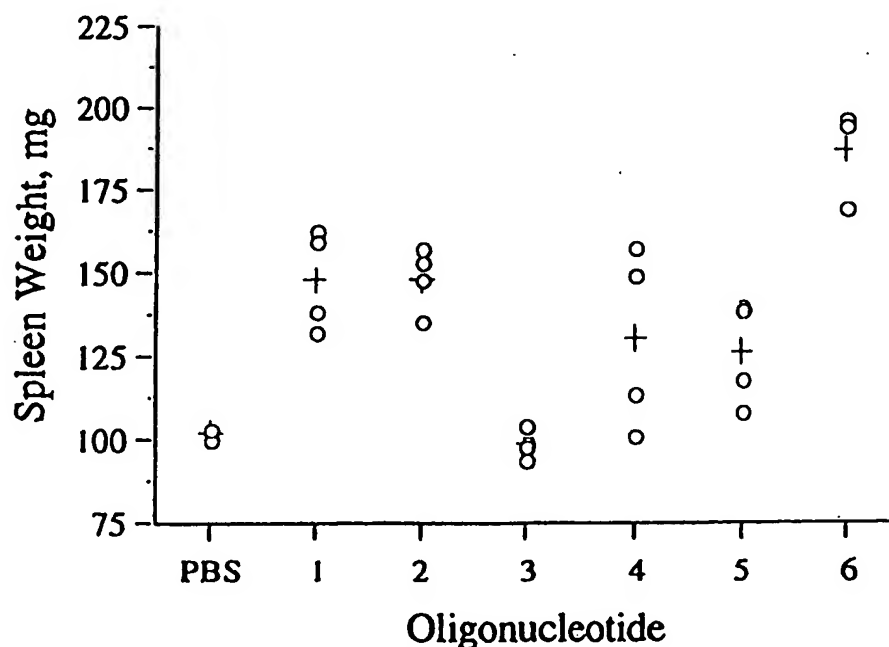
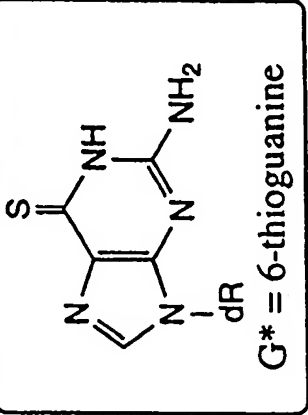


FIG. 21C

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

<i>Oligo No.</i>	<i>Sequence &amp; Modification</i>
<u>SEQ ID NO.: 1</u>	5'-CTATCTGAC <u>G</u> TTCTCTGT-3' (131-1)
<u>SEQ ID NO.: 101</u>	5'-CTATCTGAC <u>G</u> *TTCTCTGT-3' (E 682)
<u>SEQ ID NO.: 102</u>	5'-CTATCTGAG* <u>C</u> TTCTCTGT-3' (E 683)



G\* = 6-thioguanine

FIG. 22A

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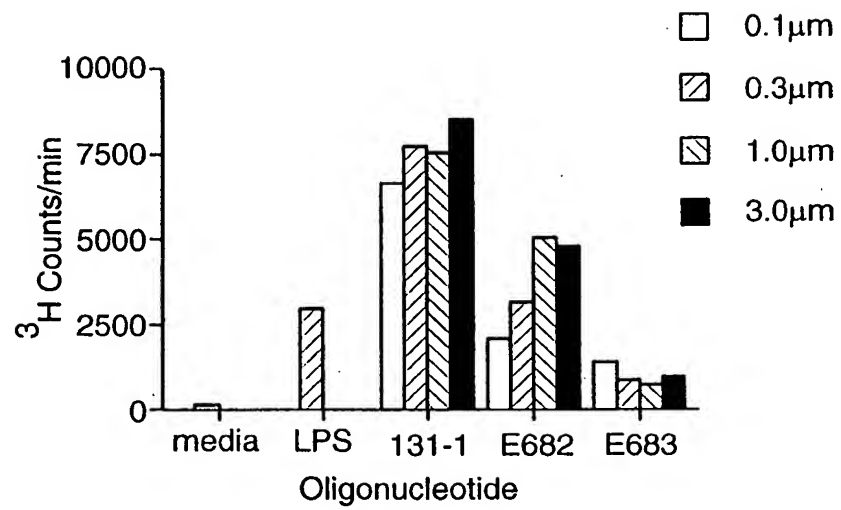


FIG. 22B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

*Oligo No. Sequence & Modification*

<u>SEQ ID NO.: 1</u>	1	5'-CTATCTGAC <u>GTTC</u> CTGT-3'
<u>SEQ ID NO.: 2</u>	2	5'-CTATCTGAC* <u>GTTC</u> CTGT-3'
<u>SEQ ID NO.: 3</u>	3	5'-CTATCTGACC* <u>TTC</u> CTGT-3'
<u>SEQ ID NO.: 4</u>	4	5'-CTATCTGAC** <u>GTC</u> CTGT-3'
<u>SEQ ID NO.: 5</u>	5	5'-CTATCTGACC** <u>TTC</u> CTGT-3'

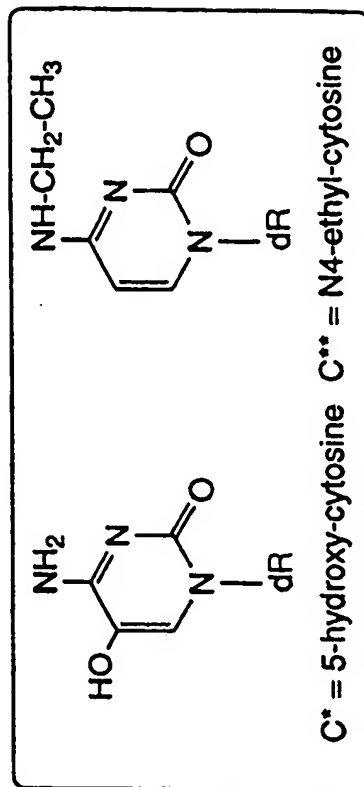


FIG. 23A



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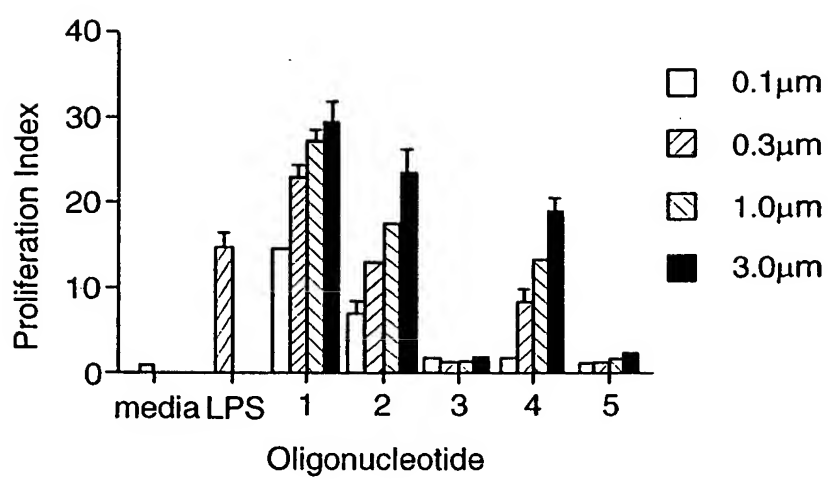


FIG. 23B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

*Oligo No. Sequence & Modification*

<u>SEQ ID NO.: 1</u>	<u>1</u>	5'-CTATCTGAC <u>GTTC</u> CTGT-3'
<u>SEQ ID NO.: 2</u>	<u>2</u>	5'-CTATCTGAC* <u>GTTC</u> CTGT-3'
<u>SEQ ID NO.: 3</u>	<u>3</u>	5'-CTATCTGAC <u>CC*TT</u> CTCTGT-3'
<u>SEQ ID NO.: 4</u>	<u>4</u>	5'-CTATCTGAC* <u>GTTC</u> CTGT-3'
<u>SEQ ID NO.: 5</u>	<u>5</u>	5'-CTATCTGAC <u>CC*TT</u> CTCTGT-3'

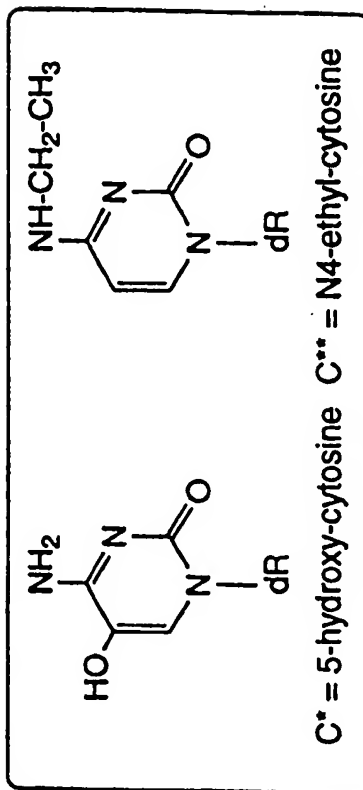


FIG. 24A

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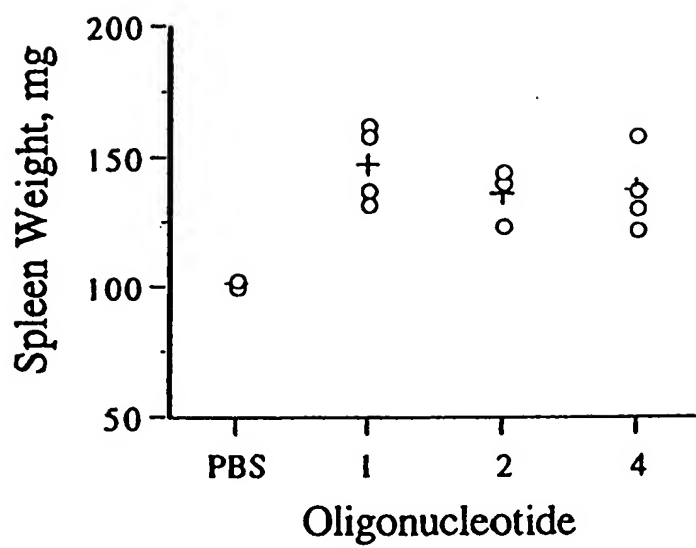


FIG. 24B

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OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

*Oligo No.*      *Sequence & Modification*

<u>SEQ ID NO.: 1</u>	1	5'-CTATCTGAC <u>G</u> TTCTCTGT-3'
<u>SEQ ID NO.: 111</u>	2	5'-CTATCTGAC* <u>G</u> TTCTCTGT-3'
<u>SEQ ID NO.: 112</u>	3	5'-CTATCTGAC <u>C</u> *TTCTCTGT-3'

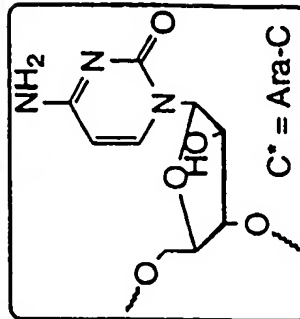


FIG. 25A

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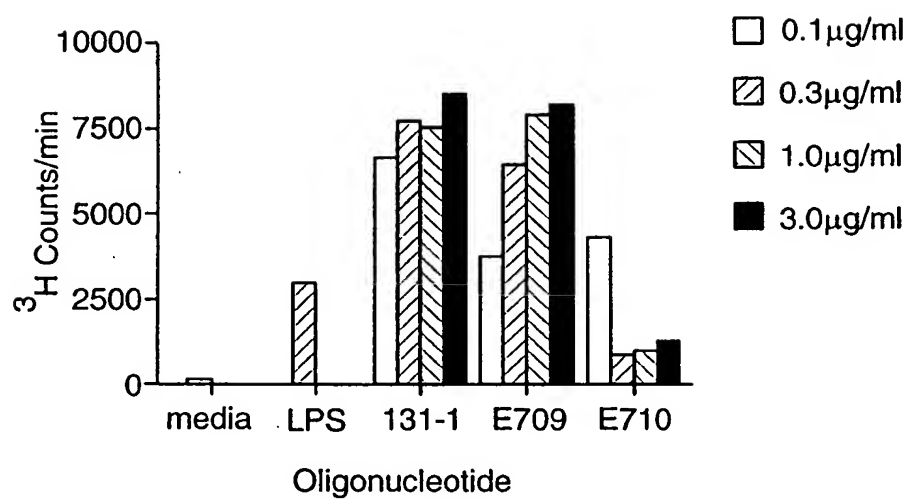


FIG. 25B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

*Oligo No. Sequence & Modification*

<u>SEQ ID NO.:</u>	<u>1</u>	5'-CTATCTGAC <u>CGTTCTCTGT</u> -3' (131-1)
<u>SEQ ID NO.:</u>	<u>103</u>	5'-CTATCTGAC* <u>GTTCTCTGT</u> -3' (E 647)
<u>SEQ ID NO.:</u>	<u>104</u>	5'-CTATXTGAC* <u>GTTCTCTGT</u> -3' (E 653)

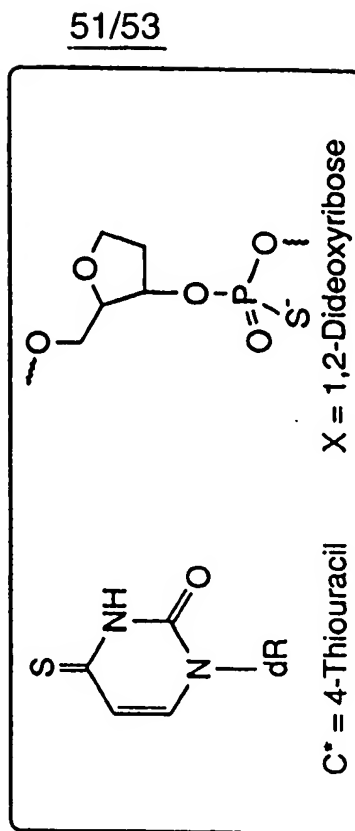


FIG. 26A

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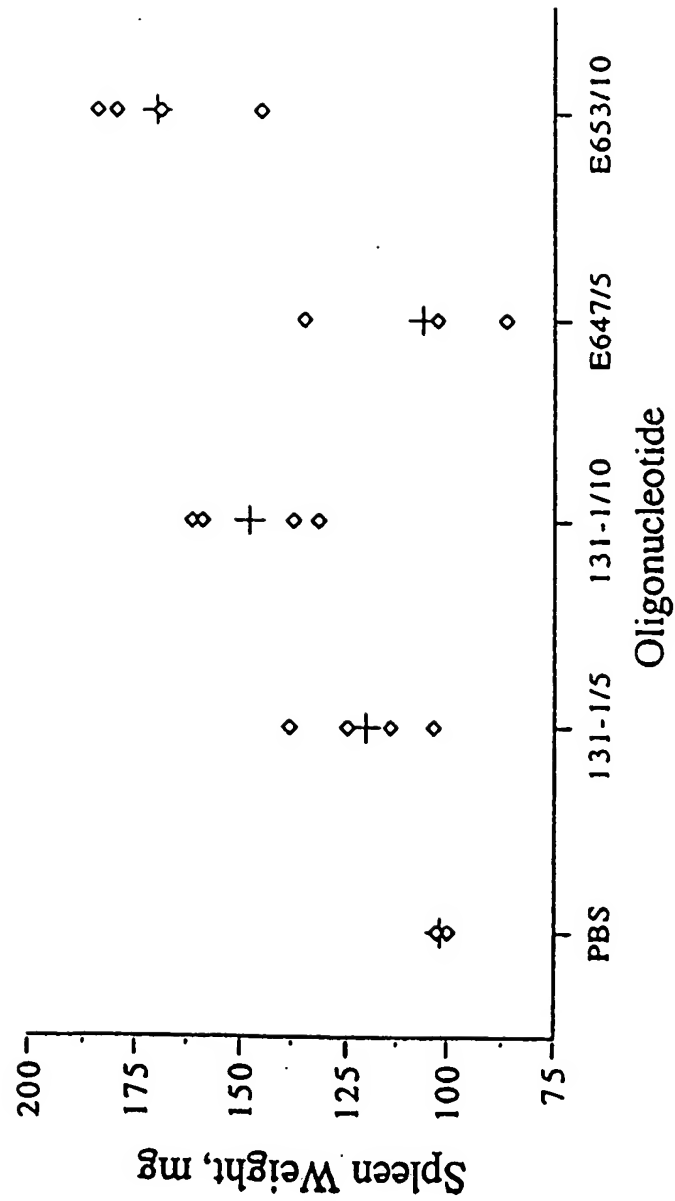


FIG. 26B

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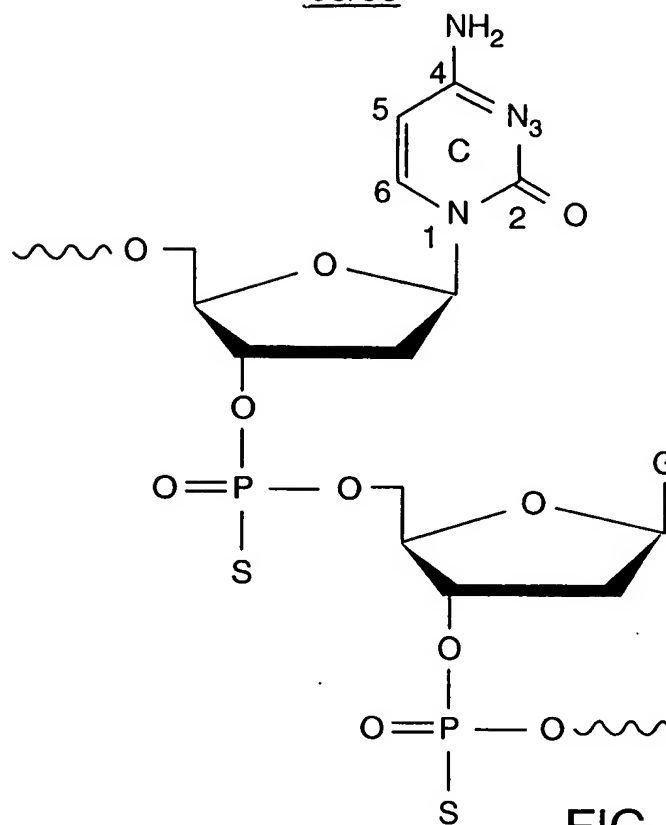


FIG. 27

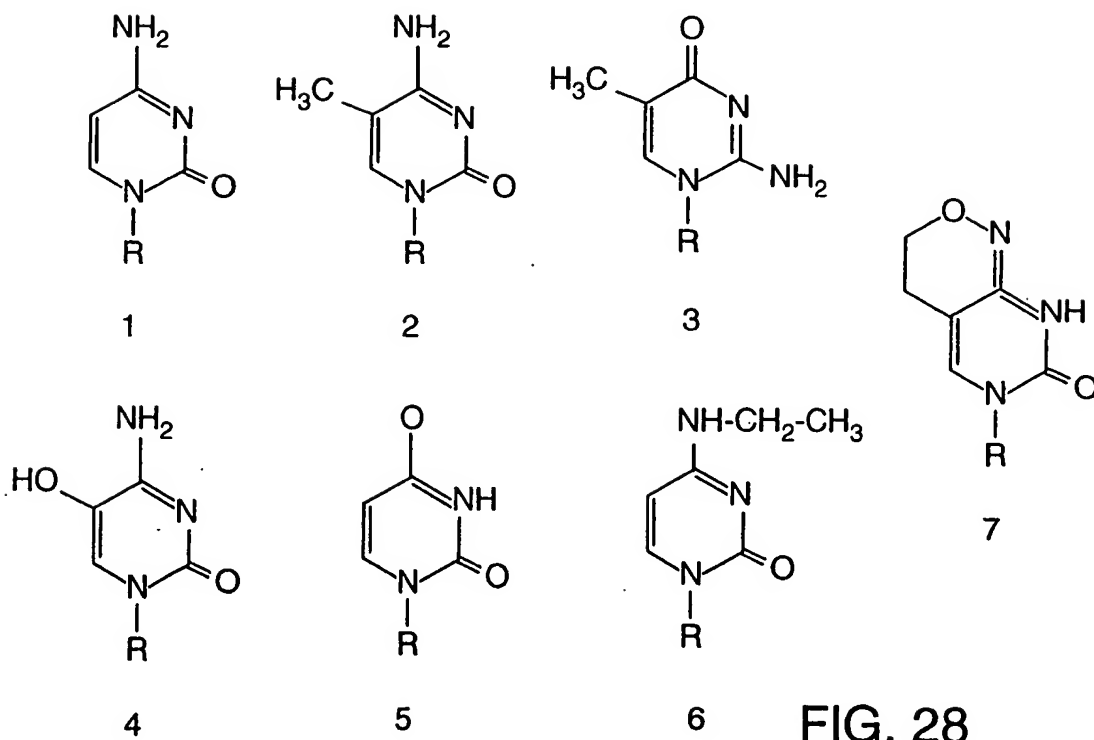


FIG. 28